

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: HOA VAN LE Examiner #: 60626 Date: 15 Nov 2004
Art Unit: 1752 Phone Number 30571-272-1332 Serial Number: 10/701448
Mail Box and Bldg/Room Location: 9D61(REM) Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____ / Please see the attachment

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for resin of the general formula (1),
especially with the elected resin.

SCIENTIFIC REFERENCE BR
Sci & Technol. Offce, Calif

11-17-04
Pat. & T.M. Office

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STAFF USE ONLY

Searcher: EJ
Searcher Phone #: _____
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Date Searcher Picked Up: _____
Date Completed: 11-17-04
Searcher Prep & Review Time: _____
Clerical Prep Time: _____
Online Time: _____

Type of Search

NA Sequence (#) _____ STN _____
AA Sequence (#) _____ Dialog _____
Structure (#) _____ Questel/Orbit _____
Bibliographic _____ Dr.Link _____
Litigation _____ Lexis/Nexis _____
Fulltext _____ Sequence Systems _____
Patent Family _____ WWW/Internet _____
Other _____ Other (specify) _____



1270.43264X00

JFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: H. KOMATSU

Application No.: 10/701,448

Filed: November 6, 2003

For: PHOTOSENSITIVE RESIN COMPOSITION, PROCESS FOR FORMING RELIEF PATTERN, AND ELECTRONIC COMPONENT

Art Unit: 1752

Examiner: H. Le

RESPONSE

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

October 12, 2004

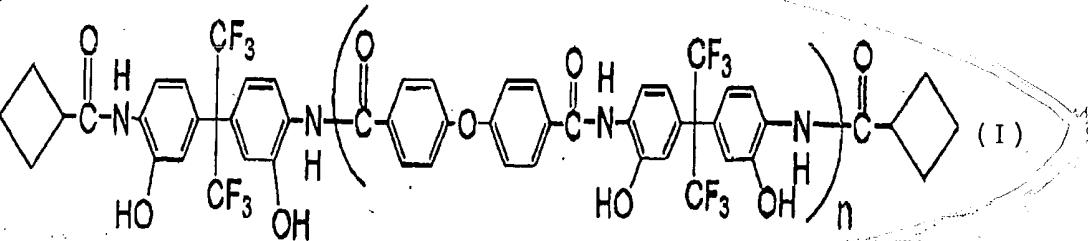
Sir:

The Office Action mailed September 10, 2004, in connection with the above-identified application, is noted. In this Office Action mailed September 10, 2004, the Examiner has required an election of a single disclosed chemical structure species for the general formula (1) set forth in claim 1, for initiation of a search. In connection therewith, the Examiner has required Applicant "to precisely disclose the elected chemical structure with (1) all bonding connections between and among all chemical ingredients and (2) listing of all chemical elements and their positions in the elected chemical structure".

In response thereto, and thus as the species elected, represented by the general formula (1) of claim 1, the following polymer (heat-resistant polymer (I)) is elected:

Elected polymer

1270.43264X00



It is respectfully submitted that the foregoing structural formula provides all bonding connections between and among all chemical ingredients, and qualifies as a listing of all chemical elements and their positions in the elected chemical structure. Accordingly, it is respectfully submitted that the above-indicated heat-resistant polymer (I), being elected in response to the Office Action mailed September 10, 2004, provides a complete response thereto.

The indication by the Examiner that no restriction requirement is being made, in the Office Action mailed September 10, 2004, is noted. It is also to be noted that the Examiner has indicated that when claim 1 is found to be allowable over prior art, claims directed to a process for forming a relief pattern (claim 11) and to an electronic component or device (claims 12 and 13) will be allowed in the present application. It is respectfully submitted that there is no need for Applicant to respond to contentions by the Examiner in Item E on page 3 of the Office Action mailed September 10, 2004.

As an aside, statements by the Examiner in Item E on page 3 of the Office Action mailed September 10, 2004, are noted. In particular, it is noted that the Examiner initially refers to species, but in the last sentence in Item E states that in the absence of convincing evidence, the "restriction" would not be removed. It is respectfully submitted, however, that no restriction requirement has been made in the Office Action mailed September 10, 2004. Note Item D on page 3 of

the Office Action mailed September 10, 2004. It is respectfully requested that the Examiner clarify the record, and indicate that the "election-of-species" requirement would not be removed in "the absence of convincing evidence", if this is the intent of Item E on page 3 of the Office Action mailed September 10, 2004.



In view of all of the foregoing, Applicant respectfully elects the above-indicated species of heat-resistant polymer (I) "for a precise consideration and search", and respectfully requests examination of the above-identified application on the merits in due course. Upon allowance of subject matter including the above-indicated species, examination of the composition including the heat-resistant polymer represented by general formula (1), and consideration and allowance of all claims presently in the application, are respectfully requested.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to the Antonelli, Terry, Stout & Kraus, LLP Deposit Account No. 01-2135 (Docket No. 1270.43264X00), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

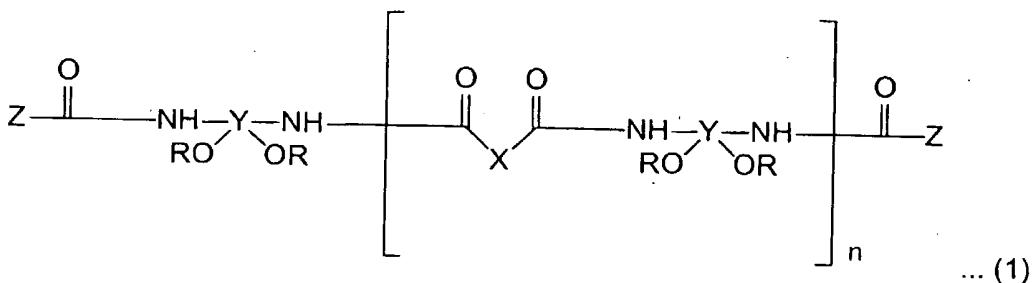
By William I. Solomon
William I. Solomon
Reg. No. 28,565

1300 North Seventeenth Street, Suite 1800
Arlington, Virginia 22209
Telephone: (703) 312-6600
Facsimile: (703) 312-6666
WIS/sjg

10/701, 448

WHAT IS CLAIMED IS:

1. A photosensitive resin composition comprising:
 - (A) a heat-resistant polymer represented by general formula (1)



where X represents a divalent organic group; Y represents a tetravalent organic group; Z represents a cyclic compound group free of reactive unsaturated bonds; R represents hydrogen or a monovalent organic group; and n is an integer of 2 to 500 and represents the number of repeating units of the polymer;

- (B) a photoreactive compound; and
 - (C) a solvent.

2. The photosensitive resin composition according to claim 1, wherein at least one of the organic groups X and Y is an aromatic group.

3. The photosensitive resin composition according to claim 1, wherein the cyclic compound group Z is a compound group having an alicyclic structure.

4. The photosensitive resin composition according to claim 2, wherein
the cyclic compound group Z is a compound group having an alicyclic
structure.
- 5 5. The photosensitive resin composition according to claim 3, wherein
the compound group having an alicyclic structure has 3 or 4 carbon atoms.
6. The photosensitive resin composition according to claim 4, wherein
the compound group having an alicyclic structure has 3 or 4 carbon atoms.
- 10
7. The photosensitive resin composition according to claim 1, wherein
the divalent organic group represented by X comprises at least one divalent
group derived from 3-fluoroisophthalic acid, 2-fluoroisophthalic acid,
3-fluorophthalic acid, 2-fluorophthalic acid, 2,4,5,6-tetrafluoroisophthalic acid,
15 3,4,5,6-tetrafluorophthalic acid,
4,4'-hexafluoroisopropylidenediphenyldicarboxylic acid, perfluorosuberic acid,
2,2'-bis(trifluoromethyl)-4,4'-biphenyleneddicarboxylic acid, terephthalic acid,
isophthalic acid, 4,4'-oxydiphenyldicarboxylic acid, 5-nitroisophthalic acid,
1,4-naphthalenedicarboxylic acid, 2,6-naphthalenedicarboxylic acid, and
20 4,4'-biphenyldicarboxylic acid.
8. The photosensitive resin composition according to claim 1, wherein
the tetravalent organic group represented by Y comprises at least one divalent
group derived from 4,4'-diamino-3,3'-dihydroxybiphenyl,
25 2,2'-bis(3-amino-4-hydroxyphenyl)propane, and

2,2'-bis(3-amino-4-hydroxyphenyl)hexafluoropropane.

9. The photosensitive resin composition according to claim 1, wherein Z comprises at least one group selected from the group consisting of
 - 5 cyclopropyl, cyclobutyl, 2-phenyl-1-cyclopropyl, 1-phenyl-1-cyclopropyl, 1-benzocyclobutenyl, 2-methylcyclopropenyl, 1-hydroxy-1-cyclopropyl, 1-carboxy-1-cyclopropyl, and 1-carboxy-1-cyclobutyl.
10. The photosensitive resin composition according to claim 1, wherein
 - 10 the heat-resistant polymer has a weight average molecular weight in the range of 5,000 to 80,000.
11. A process for forming a relief pattern, comprising:
 - 15 applying the photosensitive resin composition according to claim 1 to a support substrate and drying the composition applied to form a photosensitive resin film;
 - subjecting the dried photosensitive resin film to exposure;
 - subjecting the exposed photosensitive resin film to development using an alkaline aqueous solution; and
- 20 subjecting the developed photosensitive resin film to heating treatment.
12. An electronic component having an electronic device including at least an interlayer dielectric film layer and a surface protecting film layer,
 - 25 wherein at least one of the interlayer dielectric film layer and the

surface protecting film layer comprises a resin film formed from the photosensitive resin composition according to claim 1.

13. The electronic device according to claim 12, wherein the resin film
5 comprises a patterned film formed by the process according to claim 11.



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BIBDATASHEET

Bib Data Sheet

CONFIRMATION NO. 7624

SERIAL NUMBER 10/701,448	FILING DATE 11/06/2003 RULE	CLASS 430	GROUP ART UNIT 1752	ATTORNEY DOCKET NO. X00
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APPLICANTS

Hiroshi Komatsu, Ibaraki, JAPAN;

** CONTINUING DATA ***** None, Le

** FOREIGN APPLICATIONS ***** Le

JAPAN 2002-322700 11/06/2002
JAPAN 2003-011888 01/21/2003IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 02/04/2004

Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	35 USC 119 (a-d) conditions met <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance	STATE OR COUNTRY JAPAN	SHEETS DRAWING 1	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 1
Verified and Acknowledged _____ Examiner's Signature Initials					

ADDRESS

020457
 ANTONELLI, TERRY, STOUT & KRAUS, LLP
 1300 NORTH SEVENTEENTH STREET
 SUITE 1800
 ARLINGTON, VA
 22209-9889

TITLE

Photosensitive resin composition, process for forming relief pattern, and electronic component

FILING FEE	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue)
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L1 1785 S KOMATSU H?/AU
L2 27174 S PHOTOLENS?/TI
L3 19 S L1 AND L2
SEL L3 1-19 RN

FILE 'REGISTRY'
L4 139 S E1-E139
L6 61 S L4 AND PMS/CI

FILE 'HCAPLUS'
SEL L3 2 RN

FILE 'REGISTRY'
L7 10 S E140-E149
SEL L7 1 RN
L8 1 S E150

FILE 'HCA'
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FILE 'REGISTRY'
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L11 2 S E152-E153

FILE 'HCA'
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L13 1545 S L11
L14 1 S L12 AND L13

FILE 'LREGISTRY'
L15 STR
L16 STR
L17 STR

FILE 'REGISTRY'

L18 SCR 2043
L19 3 S L16 AND L17 AND L18
L20 1650 S L16 AND L17 AND L18 FUL
SAV L20 LE448/A
L21 1 S L15 SSS SAM SUB=L20
L22 18 S L15 SSS FUL SUB=L20
SAV L22 LE448A/A

FILE 'HCA'
L23 12 S L22

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L24 1632 S L20 NOT L22

FILE 'HCA'
L25 861 S L24
L26 1 S (L12 OR L25) AND L13

FILE 'REGISTRY'
L27 7 POLYLINK L10

FILE 'HCA'
L28 99 S L27
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FILE 'REGISTRY'
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FILE 'HCA'
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L32 1 S L31 AND L13

FILE 'REGISTRY'
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L34 25 S L33

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L35 STR

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L36 42 S L35
L37 SCR 1380 OR 1526
L38 42 S L35 AND L37
L39 SCR 1034
L40 50 S L35 AND L37 AND L39
L41 50 S L35 AND L15 AND L37 AND L39
L42 11862 S L35 AND L15 AND L37 AND L39 FUL
SAV TEM L42 LE448B/A

L43 3 S L42 AND L20

FILE 'HCA'
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L45 3 POLYLINK L43

FILE 'HCA'
L46 10846 S L42
L47 3 S L46 AND (L28 OR L31)
L48 13 S L9 OR L14 OR L23 OR L26 OR L29 OR L32 OR L44 OR L47

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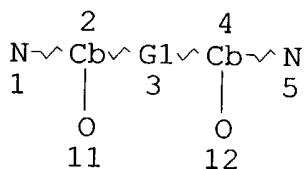
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18 ANSWERS

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L48 ANSWER 1 OF 13 HCA COPYRIGHT 2004 ACS on STN
 141:197145 Polyamides for precursors of polybenzoxazole optical

waveguides with low transmission loss. Miyao, Kenji (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP-2004224900 A2 20040812, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-14064 20030122.

AB The polyamides have repeating units of $ZCO[NHX(OR1)(OR2)NHCOYCO]_m NHX(OR3)(OR4)NHCOZ$ ($R1-R4 = H$, monovalent org. group; $X =$ tetravalent org. group; $Y =$ divalent org. group contg. ethynyl group, biphenylene group, etc.; $Z =$ monovalent org. group; $0 < m \leq 1000$). The polyamides are made into optical waveguides without crack formation.

IT 737829-37-7DP, terminated with 5-norbornene-2,3-dicarboxylic anhydride

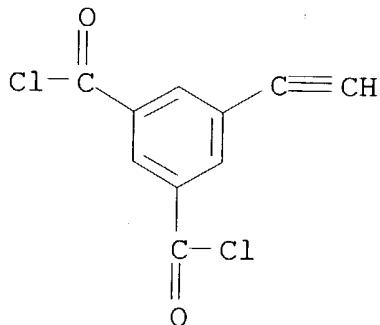
(crosslinked; polyamides for precursors of polybenzoxazole optical waveguides with low transmission loss)

RN 737829-37-7 HCA

CN 1,3-Benzenedicarbonyl dichloride, 5-ethynyl-, polymer with 1,4-cyclohexanedicarbonyl dichloride, 4,4'-oxybis[benzoyl chloride] and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

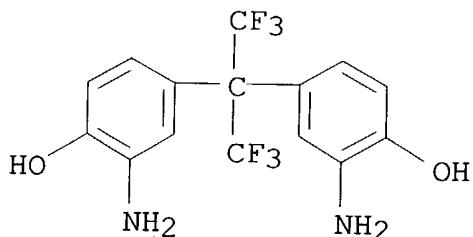
CM 1

CRN 393543-05-0
CMF C10 H4 Cl2 O2



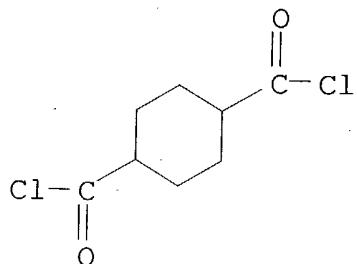
CM 2

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



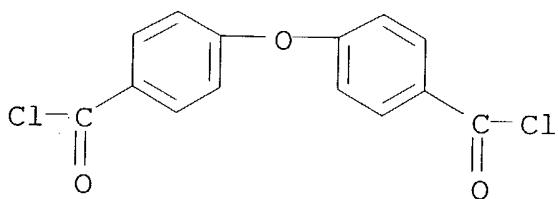
CM 3

CRN 13170-66-6
 CMF C₈ H₁₀ Cl₁₂ O₂



CM 4

CRN 7158-32-9
 CMF C₁₄ H₈ Cl₁₂ O₃



IT 737829-37-7DP, terminated with 5-norbornene-2,3-dicarboxylic anhydride

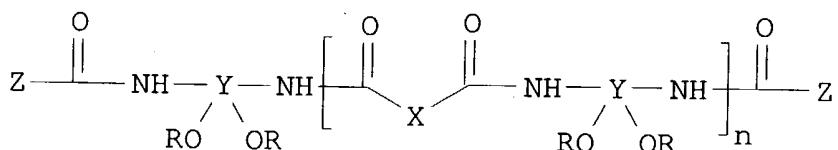
(crosslinked; polyamides for precursors of polybenzoxazole optical waveguides with low transmission loss)

L48 ANSWER 2 OF 13 HCA COPYRIGHT 2004 ACS on STN
 141:148090 Photosensitive resin composition, process for forming relief pattern, and electronic component. Komatsu, Hiroshi (Japan). U.S.

Applicant

Pat. Appl. Publ. US-2004142275 A1 20040722, 10 pp. (English).
 CODEN: USXXCO. APPLICATION: US 2003-701448 20031106. PRIORITY: JP
 2002-322700 20021106; JP 2003-11888 20030121.

GI



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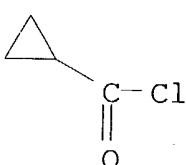
AB A photosensitive resin compn. is disclosed that includes (A) a heat-resistant polymer of I (X =divalent org. group; Y = tetravalent org. group; Z =cyclic compd. group free of reactive unsatd. bonds; R = H, monovalent org. group; n = 2-500), (B) a photoreactive compd., and (C) a solvent. A relief pattern is formed from the compn. by applying the compn. to a support substrate and drying it to form a photosensitive resin film; exposing the dried film; developing the exposed film using an alk. aq. soln.; and heating the developed photosensitive resin film. Also disclosed is an electronic component that includes an electronic device having such a pattern.

IT 4023-34-1DP, Cyclopropanecarbonyl chloride, reaction product with hydroxy-contg. polyamides 5006-22-4DP, Cyclobutanecarbonyl chloride, reaction product with hydroxy-contg. polyamides 112492-60-1DP, cycloalkyl- or acryloylamide derivs. 340819-84-3P 726180-89-8P

(photosensitive resin compn. for forming relief pattern and electronic component contg.)

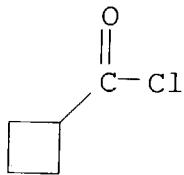
RN 4023-34-1 HCA

CN Cyclopropanecarbonyl chloride (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 5006-22-4 HCA

CN Cyclobutanecarbonyl chloride (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



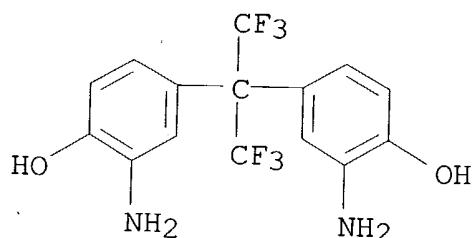
RN 112492-60-1 HCA

CN Benzoic acid, 4,4'-oxybis-, polymer with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

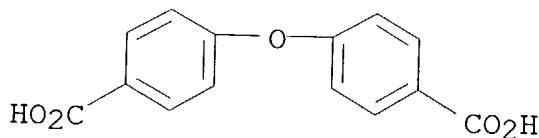
CMF C15 H12 F6 N2 O2



CM 2

CRN 2215-89-6

CMF C14 H10 O5



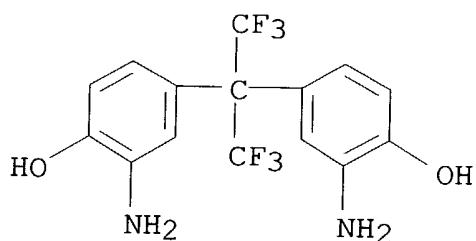
RN 340819-84-3 HCA

CN Benzoic acid, 4,4'-oxybis-, polymer with 2,5-furandione and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

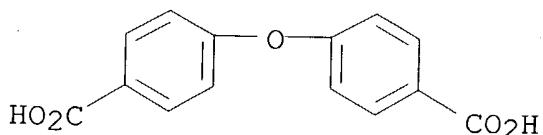
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CMF C15 H12 F6 N2 O2



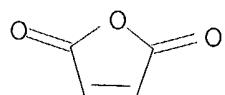
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CRN 2215-89-6
CMF C14 H10 O5



CM 3

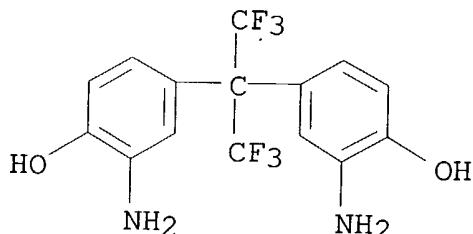
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CMF C4 H2 O3



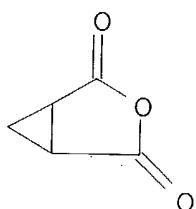
RN 726180-89-8 HCA
CN Benzoic acid, 4,4'-oxybis-, polymer with 3-oxabicyclo[3.1.0]hexane-2,4-dione and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

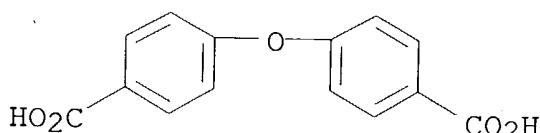
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CMF C15 H12 F6 N2 O2



CM 2

CRN 5617-74-3
CMF C5 H4 O3

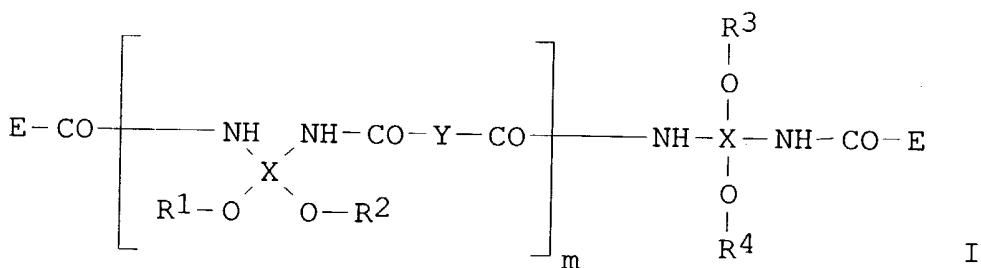
CM 3

CRN 2215-89-6
CMF C14 H10 O5

IT 4023-34-1DP, Cyclopropanecarbonyl chloride, reaction product with hydroxy-contg. polyamides 5006-22-4DP,
 Cyclobutanecarbonyl chloride, reaction product with hydroxy-contg. polyamides 112492-60-1DP, cycloalkyl- or acryloylamide derivs. 340819-84-3P 726180-89-8P
 (photosensitive resin compn. for forming relief pattern and electronic component contg.)

L48 ANSWER 3 OF 13 HCA COPYRIGHT 2004 ACS on STN
 140:347173 Positive type photosensitive plastic material for making optical waveguide. Miyao, Kenji (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP-2004118123 A2 20040415, 25 pp.

GI (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-284534 20020927.



- AB The invention relates to a pos.-type photosensitive plastic material for making an optical waveguide, esp. suited for use in making a cladding layer, comprising 1-100 parts of photosensitive diazoquinones and 100 parts of the polyamide represented by I [R1-4 = H or monovalent org. group; X = tetravalent org. group; Y = divalent org. group; and E = monovalent org. group; 0 < m .ltoreq. 1000].

IT 29186-74-1DP, terminated by maleic acid anhydride
29186-76-3DP, terminated by perfluorobenzoic acid chloride
29186-77-4DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 29791-91-1DP, terminated by maleic acid anhydride 37165-14-3DP, terminated by 3,5-trifluoromethylbenzoic acid chloride 112492-59-8DP, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic acid chloride copolymer, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 174407-77-3DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 257280-04-9DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 500372-81-6DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680619-85-6P 680619-94-7P
680619-96-9P 680619-97-0P 680619-98-1P
680619-99-2P 680620-00-2P 680620-01-3P
680620-02-4P 680620-03-5P 680620-04-6P
680620-05-7P 680620-06-8P 680620-07-9P
680620-08-0P 680620-15-9P 680620-16-0P
680620-17-1P 680620-18-2DP, perfluorobenzoic acid chloride-terminated 680620-19-3DP, 3,5-trifluoromethylbenzoic acid chloride-terminated 680620-21-7P
680620-22-8P 680620-23-9P 680620-24-0P
680620-25-1DP, terminated by 3,5-trifluoromethylbenzoic acid chloride 680620-26-2P 680620-27-3P

680620-28-4P 680620-29-5DP, terminated by
 5-norbornane-2,3-dicarboxylic acid anhydride **680620-30-8DP**
 , terminated by 5-norbornane-2,3-dicarboxylic acid anhydride
680620-31-9DP, terminated by 5-norbornane-2,3-dicarboxylic
 acid anhydride **680620-32-0DP**, terminated by
 5-norbornane-2,3-dicarboxylic acid anhydride **680620-33-1DP**
 , terminated by 5-norbornane-2,3-dicarboxylic acid anhydride
680620-34-2DP, terminated by 5-norbornane-2,3-dicarboxylic
 acid anhydride **680620-35-3DP**, terminated by
 5-norbornane-2,3-dicarboxylic acid anhydride **680620-36-4P**
680620-37-5P 680620-38-6P 680620-39-7DP,
 terminated by 5-norbornane-2,3-dicarboxylic acid anhydride
680620-40-0DP, terminated by 5-norbornane-2,3-dicarboxylic
 acid anhydride **680620-41-1DP**, terminated by
 5-norbornane-2,3-dicarboxylic acid anhydride **680620-42-2DP**
 , terminated by 5-norbornane-2,3-dicarboxylic acid anhydride
748806-62-4DP, terminated by perfluorobenzoic acid chloride
 (pos. type photosensitive plastic material for making optical
 waveguide)

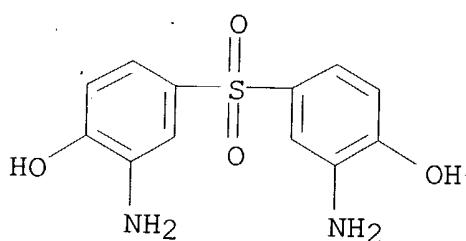
RN 29186-74-1 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-sulfonylbis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 7545-50-8

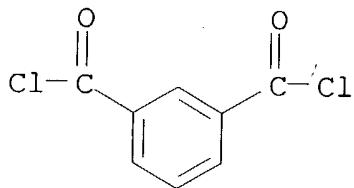
CMF C12 H12 N2 O4 S



CM 2

CRN 99-63-8

CMF C8 H4 Cl2 O2



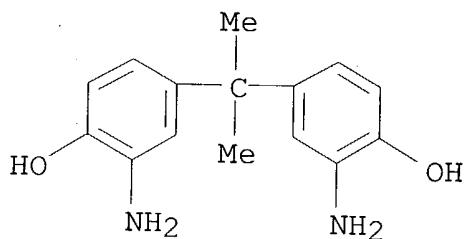
RN 29186-76-3 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-(1-methylethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 1220-78-6

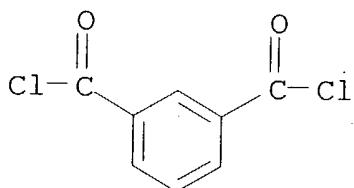
CMF C15 H18 N2 O2



CM 2

CRN 99-63-8

CMF C8 H4 Cl2 O2



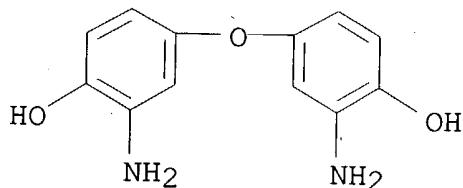
RN 29186-77-4 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

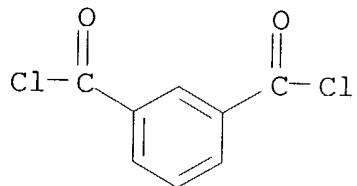
CRN 6423-17-2

CMF C12 H12 N2 O3



CM 2

CRN 99-63-8
CMF C8 H4 C12 O2

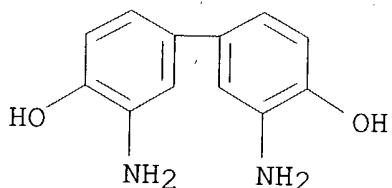


RN 29791-91-1 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 3,3'-diamino[1,1'-biphenyl]-4,4'-diol (9CI) (CA INDEX NAME)

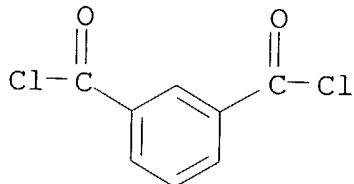
CM 1

CRN 4194-40-5
CMF C12 H12 N2 O2



CM 2

CRN 99-63-8
CMF C8 H4 C12 O2



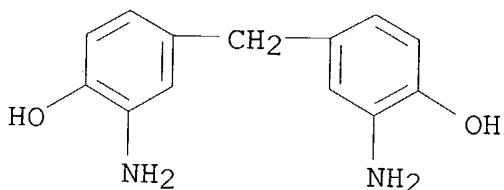
RN 37165-14-3 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-methylenebis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 16523-28-7

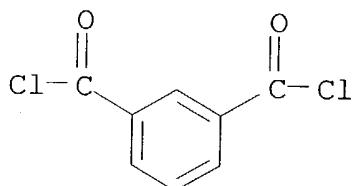
CMF C13 H14 N2 O2



CM 2

CRN 99-63-8

CMF C8 H4 Cl2 O2



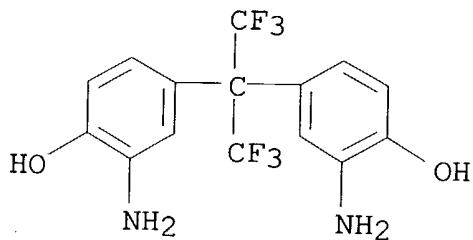
RN 112492-59-8 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

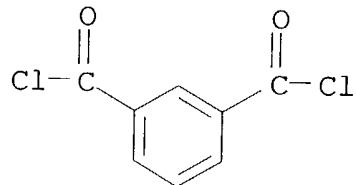
CMF C15 H12 F6 N2 O2



CM 2

CRN 99-63-8

CMF C8 H4 Cl2 O2



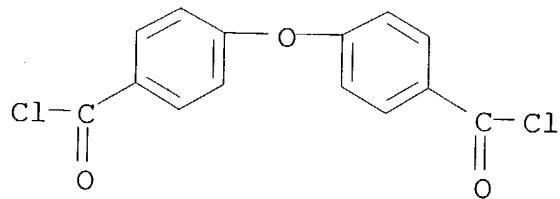
RN 174407-77-3 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[2-aminophenol] and 4,4'-oxybis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

CRN 7158-32-9

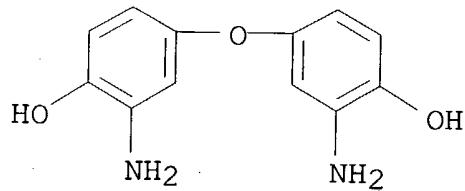
CMF C14 H8 Cl2 O3



CM 2

CRN 6423-17-2

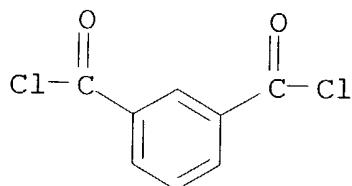
CMF C12 H12 N2 O3



CM 3

CRN 99-63-8

CMF C8 H4 Cl2 O2



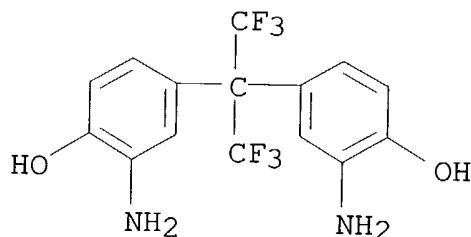
RN 257280-04-9 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

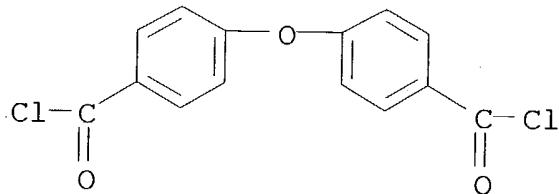
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

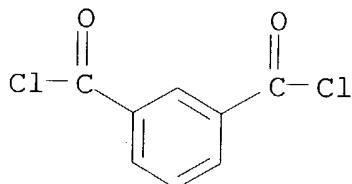
CMF C14 H8 Cl2 O3



CM 3

CRN 99-63-8

CMF C8 H4 Cl2 O2



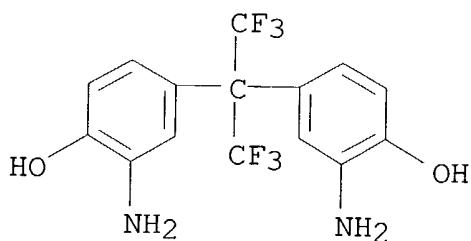
RN 500372-81-6 HCA

CN Benzoyl chloride, 4,4'-oxybis-, polymer with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

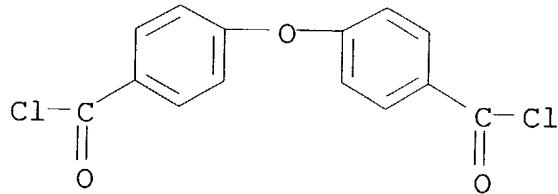
CMF C15 H12 F6 N2 O2



CM 2

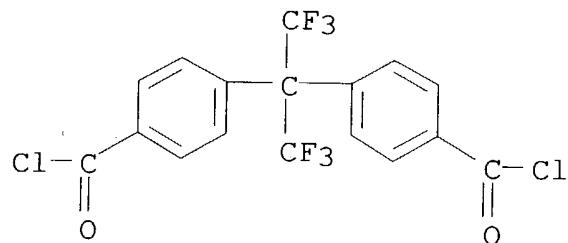
CRN 7158-32-9

CMF C14 H8 Cl2 O3



CM 3

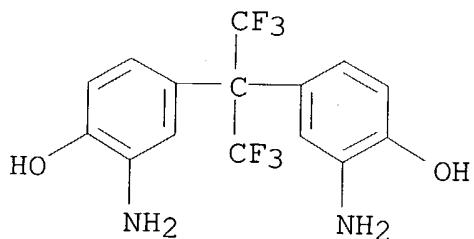
CRN 1102-92-7
 CMF C17 H8 Cl2 F6 O2



RN 680619-85-6 HCA
 CN 1,3-Benzenedicarbonyl dichloride, polymer with 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

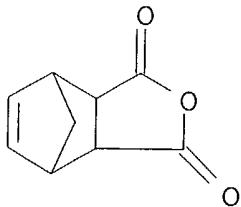
CM 1

CRN 83558-87-6
 CMF C15 H12 F6 N2 O2



CM 2

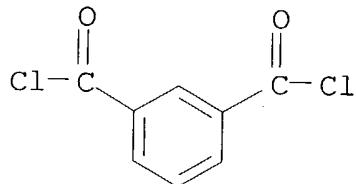
CRN 826-62-0
 CMF C9 H8 O3



CM 3

CRN 99-63-8

CMF C8 H4 Cl2 O2



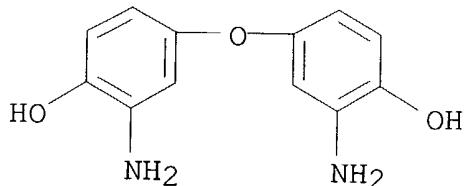
RN 680619-94-7 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[2-aminophenol] and 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione (9CI) (CA INDEX NAME)

CM 1

CRN 6423-17-2

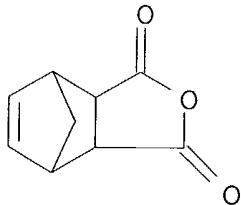
CMF C12 H12 N2 O3



CM 2

CRN 826-62-0

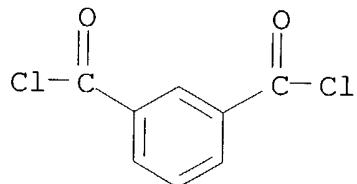
CMF C9 H8 O3



CM 3

CRN 99-63-8

CMF C8 H4 O2



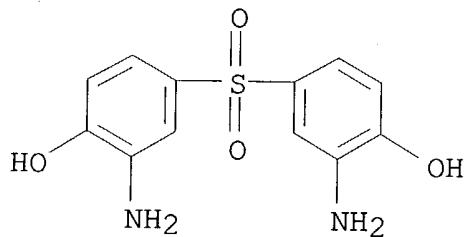
RN 680619-96-9 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 2,5-furandione and
4,4'-sulfonylbis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 7545-50-8

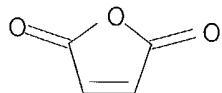
CMF C12 H12 N2 O4 S



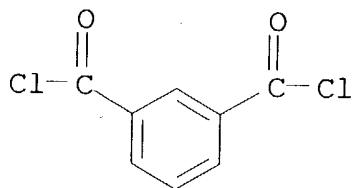
CM 2

CRN 108-31-6

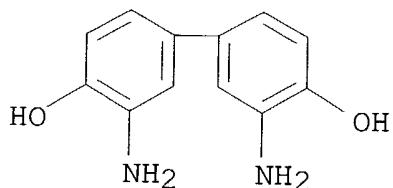
CMF C4 H2 O3



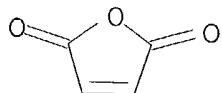
CM 3

CRN 99-63-8
CMF C8 H4 Cl2 O2RN 680619-97-0 HCA
CN 1,3-Benzenedicarbonyl dichloride, polymer with 3,3'-diamino[1,1'-biphenyl]-4,4'-diol and 2,5-furandione (9CI) (CA INDEX NAME)

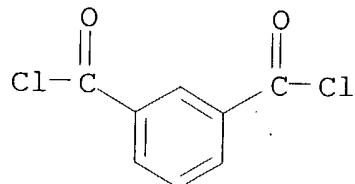
CM 1

CRN 4194-40-5
CMF C12 H12 N2 O2

CM 2

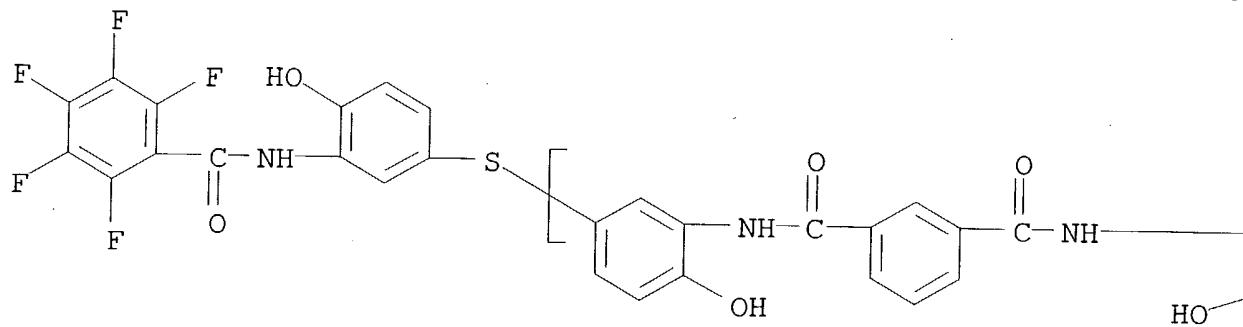
CRN 108-31-6
CMF C4 H2 O3

CM 3

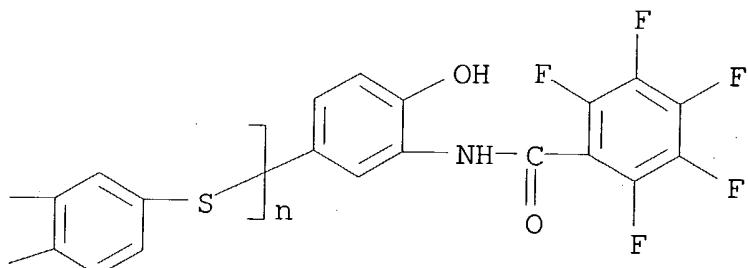
CRN 99-63-8
CMF C8 H4 Cl2 O2

RN 680619-98-1 HCA
 CN Poly[thio(4-hydroxy-1,3-phenylene)iminocarbonyl-1,3-phenylene carbonylimino(6-hydroxy-1,3-phenylene)], .alpha.-[4-hydroxy-3-[(pentafluorobenzoyl)amino]phenyl]-.omega.-[[4-hydroxy-3-[(pentafluorobenzoyl)amino]phenyl]thio]- (9CI) (CA INDEX NAME)

PAGE 1-A



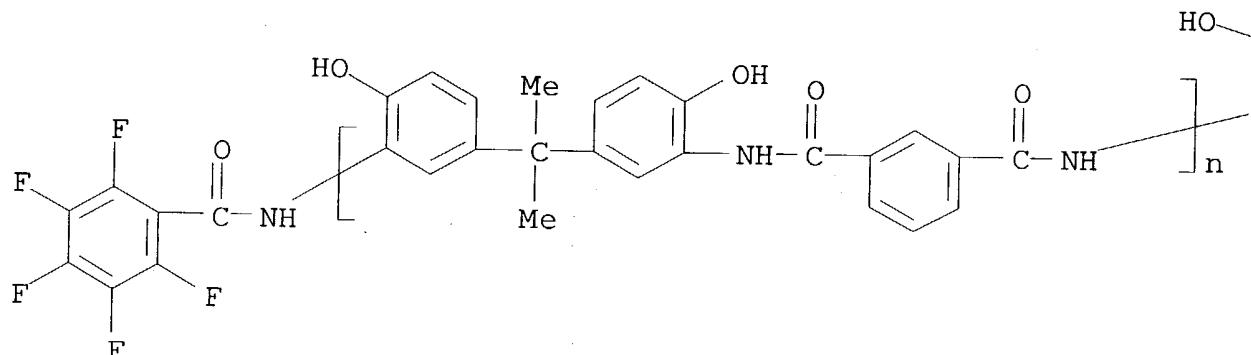
PAGE 1-B



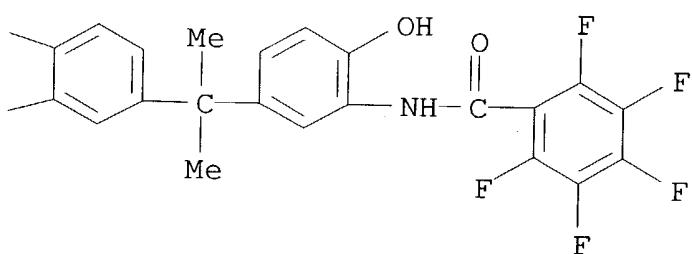
RN 680619-99-2 HCA

CN Poly[iminocarbonyl-1,3-phenylene carbonylimino(6-hydroxy-1,3-phenylene) (1-methylethylidene) (4-hydroxy-1,3-phenylene)], .alpha.-[2-hydroxy-5-[1-[4-hydroxy-3-[(pentafluorobenzoyl)amino]phenyl]-1-methylethyl]phenyl]-.omega.-[(pentafluorobenzoyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



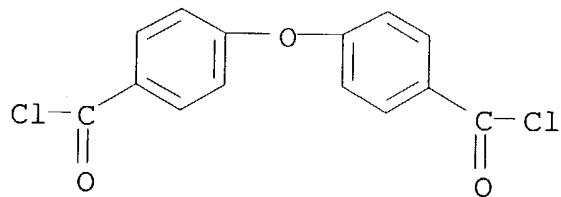
RN 680620-00-2 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 3,3'-diamino[1,1'-biphenyl]-4,4'-diol, 4,4'-oxybis[benzoyl chloride] and 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione (9CI) (CA INDEX NAME)

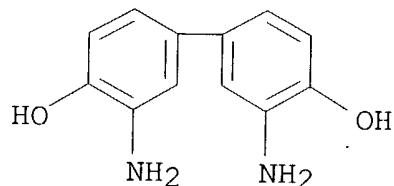
CM 1

CRN 7158-32-9

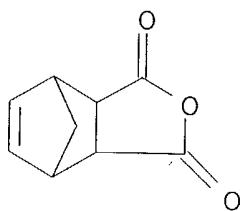
CMF C14 H8 C12 O3



CM 2

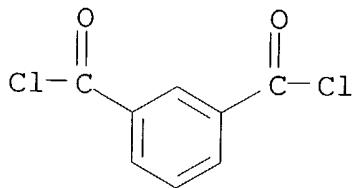
CRN 4194-40-5
CMF C12 H12 N2 O2

CM 3

CRN 826-62-0
CMF C9 H8 O3

CM 4

CRN 99-63-8
CMF C8 H4 Cl2 O2



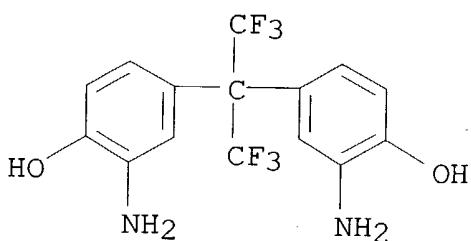
RN 680620-01-3 HCA

CN Benzoyl chloride, 4,4'-oxybis-, polymer with 4,4'-sulfonylbis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

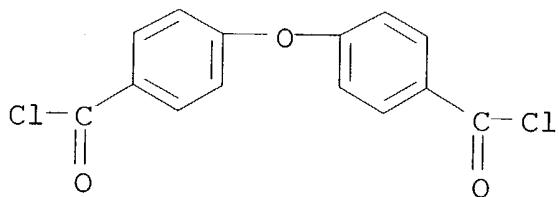
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

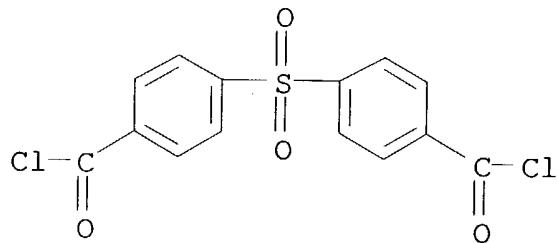
CMF C14 H8 C12 O3



CM 3

CRN 4462-61-7

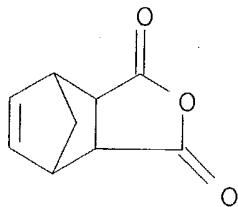
CMF C14 H8 Cl2 O4 S



CM 4

CRN 826-62-0

CMF C9 H8 O3



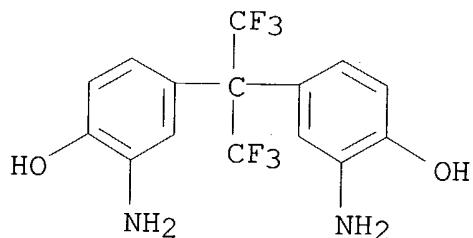
RN 680620-02-4 HCA

CN [1,1'-Biphenyl]-4,4'-dicarbonyl dichloride, polymer with
 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-
 methanoisobenzofuran-1,3-dione and 4,4'-(2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX
 NAME)

CM 1

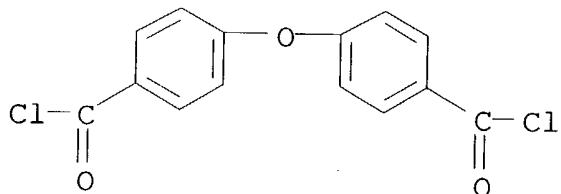
CRN 83558-87-6

CMF C15 H12 F6 N2 O2



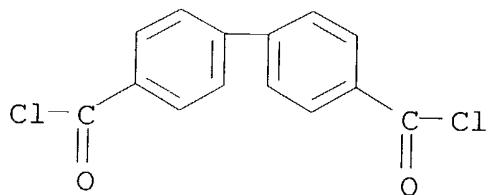
CM 2

CRN 7158-32-9
 CMF C14 H8 Cl2 O3



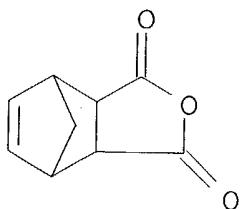
CM 3

CRN 2351-37-3
 CMF C14 H8 Cl2 O2



CM 4

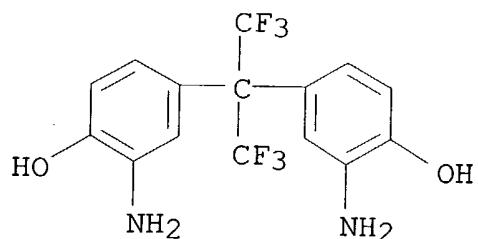
CRN 826-62-0
 CMF C9 H8 O3



RN 680620-03-5 HCA
 CN Benzoyl chloride, 4,4'-(1-methylethylidene)bis-, polymer with
 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-
 methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
 NAME)

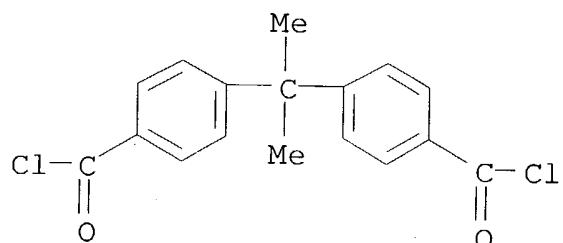
CM 1

CRN 83558-87-6
 CMF C15 H12 F6 N2 O2



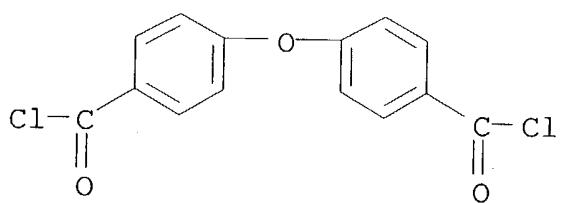
CM 2

CRN 19855-84-6
 CMF C17 H14 Cl2 O2



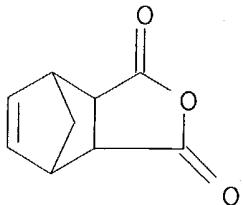
CM 3

CRN 7158-32-9
 CMF C14 H8 Cl2 O3



CM 4

CRN 826-62-0
 CMF C9 H8 O3



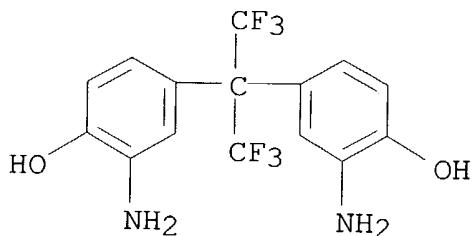
RN 680620-04-6 HCA

CN Benzoyl chloride, 4,4'-methylenebis-, polymer with
 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-
 methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
 NAME)

CM 1

CRN 83558-87-6

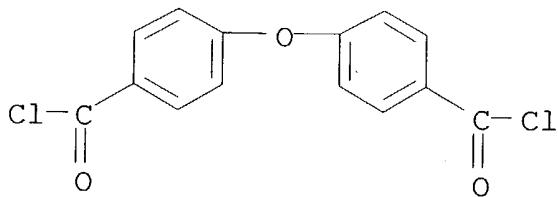
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

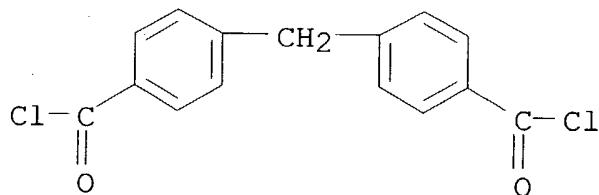
CMF C14 H8 Cl2 O3



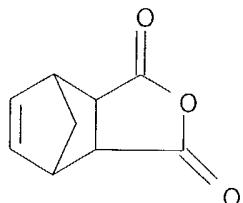
CM 3

CRN 3268-26-6

CMF C15 H10 Cl2 O2

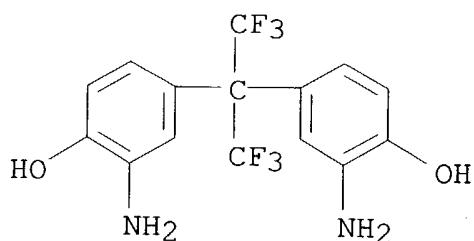


CM 4

CRN 826-62-0
CMF C9 H8 O3

RN 680620-05-7 HCA
 CN Benzoyl chloride, 4,4'-oxybis-, polymer with 3,3'-(1,3-phenylenebis(oxy))bis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

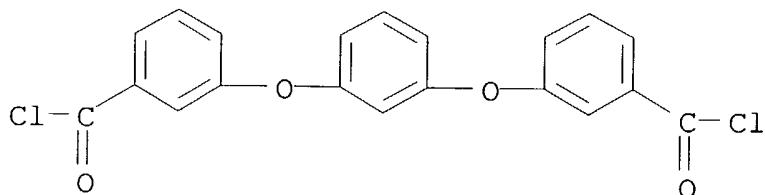
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2

CM 2

CRN 74294-29-4

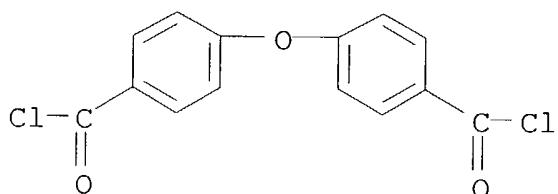
CMF C20 H12 Cl2 O4



CM 3

CRN 7158-32-9

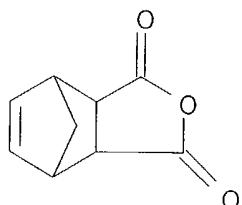
CMF C14 H8 Cl2 O3



CM 4

CRN 826-62-0

CMF C9 H8 O3



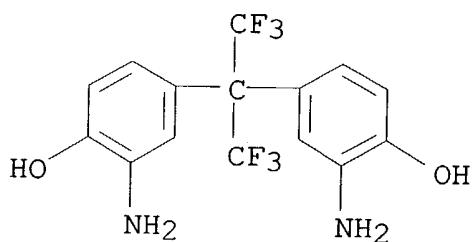
RN 680620-06-8 HCA

CN [1,1':4',1'':4'',1''':4''',1''''-Quaterphenyl]-4,4''''-dicarbonyl dichloride,
polymer with 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-
methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-
(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
NAME)

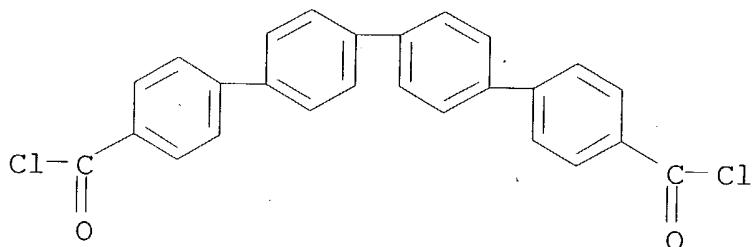
CM 1

CRN 83558-87-6

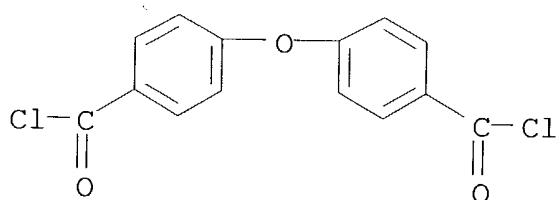
CMF C15 H12 F6 N2 O2



CM 2

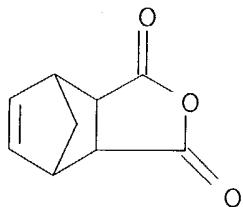
CRN 55586-27-1
CMF C26 H16 Cl2 O2

CM 3

CRN 7158-32-9
CMF C14 H8 Cl2 O3

CM 4

CRN 826-62-0
CMF C9 H8 O3



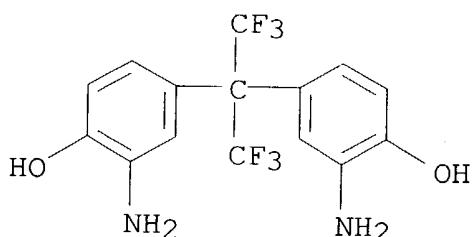
RN 680620-07-9 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

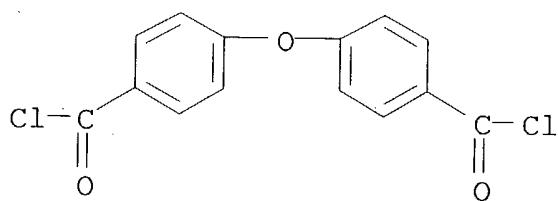
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

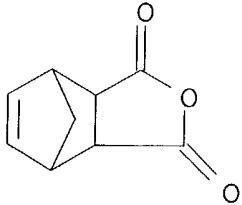
CMF C14 H8 Cl2 O3



CM 3

CRN 826-62-0

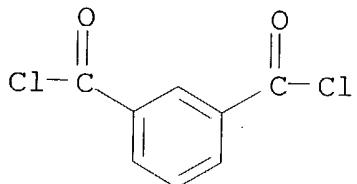
CMF C9 H8 O3



CM 4

CRN 99-63-8

CMF C8 H4 Cl2 O2



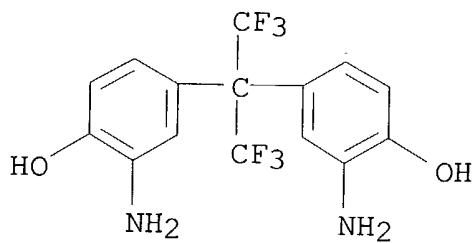
RN 680620-08-0 HCA

CN Benzoyl chloride, 4,4'-oxybis-, polymer with 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

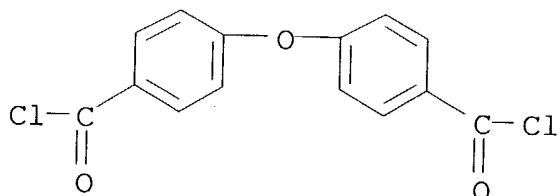
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

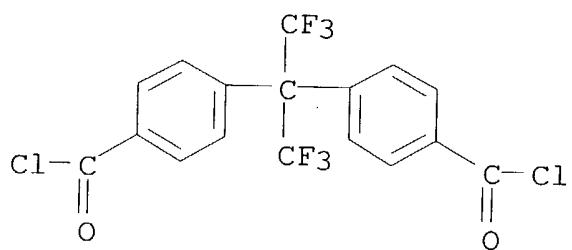
CMF C14 H8 Cl2 O3



CM 3

CRN 1102-92-7

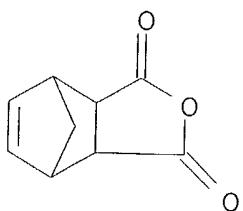
CMF C17 H8 Cl2 F6 O2



CM 4

CRN 826-62-0

CMF C9 H8 O3



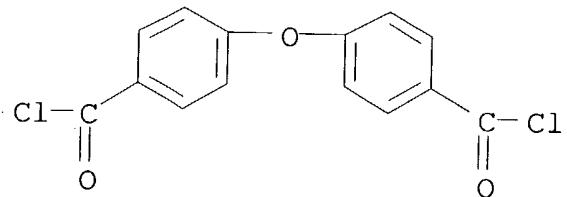
RN 680620-15-9 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[2-aminophenol], 4,4'-oxybis[benzoyl chloride] and 3a,4,4',7-tetrahydro-4,7-methanoisobenzofuran-1,3-dione (9CI) (CA INDEX NAME)

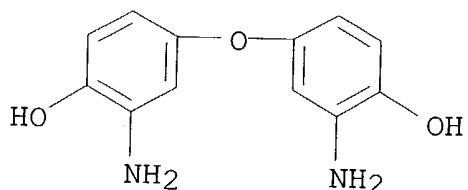
CM 1

CRN 7158-32-9

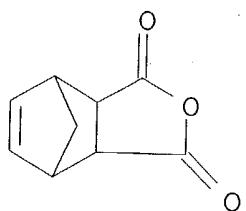
CMF C14 H8 Cl2 O3



CM 2

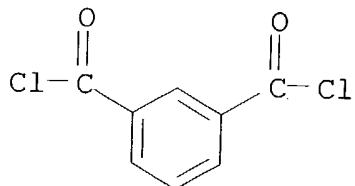
CRN 6423-17-2
CMF C12 H12 N2 O3

CM 3

CRN 826-62-0
CMF C9 H8 O3

CM 4

CRN 99-63-8
CMF C8 H4 Cl2 O2



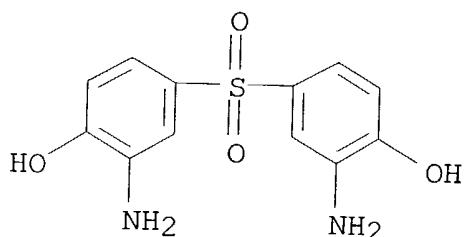
RN 680620-16-0 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[benzoyl chloride], 4,4'-sulfonylbis[2-aminophenol] and 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione (9CI) (CA INDEX NAME)

CM 1

CRN 7545-50-8

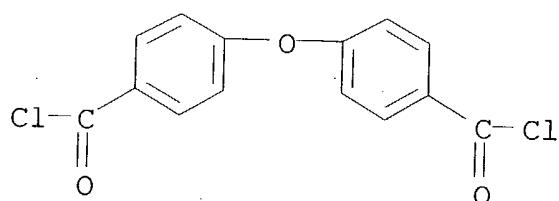
CMF C12 H12 N2 O4 S



CM 2

CRN 7158-32-9

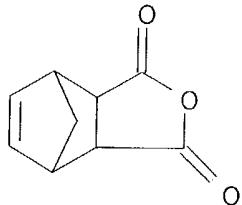
CMF C14 H8 Cl2 O3



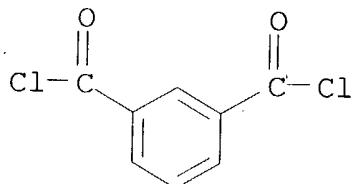
CM 3

CRN 826-62-0

CMF C9 H8 O3



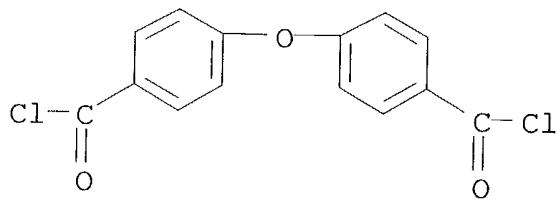
CM 4

CRN 99-63-8
CMF C8 H4 Cl2 O2

RN 680620-17-1 HCA

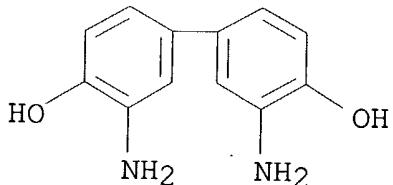
CN 1,3-Benzenedicarbonyl dichloride, polymer with 3,3'-diamino[1,1'-biphenyl]-4,4'-diol, 2,5-furandione and 4,4'-oxybis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

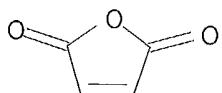
CRN 7158-32-9
CMF C14 H8 Cl2 O3

CM 2

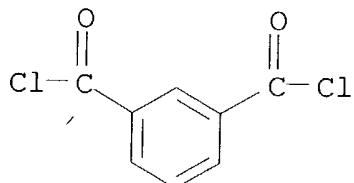
CRN 4194-40-5
CMF C12 H12 N2 O2



CM 3

CRN 108-31-6
CMF C4 H2 O3

CM 4

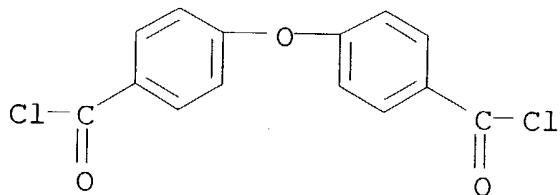
CRN 99-63-8
CMF C8 H4 Cl2 O2

RN 680620-18-2 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-(1-methylethylidene)bis[2-aminophenol] and 4,4'-oxybis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

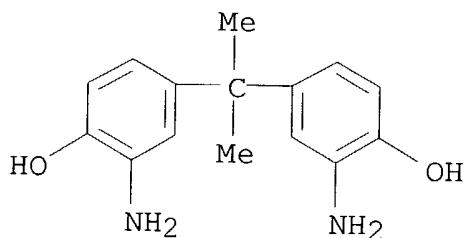
CRN 7158-32-9
CMF C14 H8 Cl2 O3



CM 2

CRN 1220-78-6

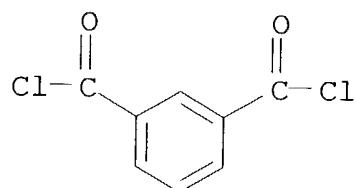
CMF C15 H18 N2 O2



CM 3

CRN 99-63-8

CMF C8 H4 Cl2 O2



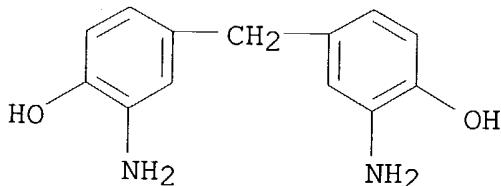
RN 680620-19-3 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-methylenebis[2-aminophenol] and 4,4'-oxybis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

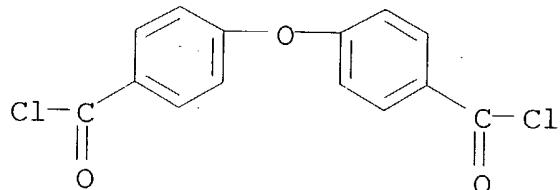
CRN 16523-28-7

CMF C13 H14 N2 O2



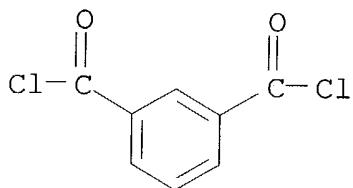
CM 2

CRN 7158-32-9
 CMF C14 H8 Cl2 O3



CM 3

CRN 99-63-8
 CMF C8 H4 Cl2 O2

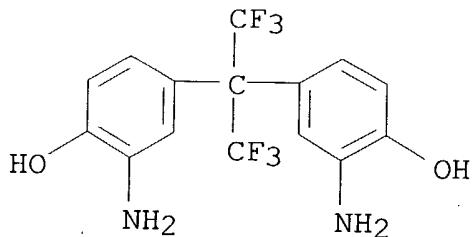


RN 680620-21-7 HCA

CN 1,4-Cyclohexanedicarbonyl dichloride, polymer with
 $4,4'$ -oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-
 methanoisobenzofuran-1,3-dione and $4,4'$ -[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
 NAME)

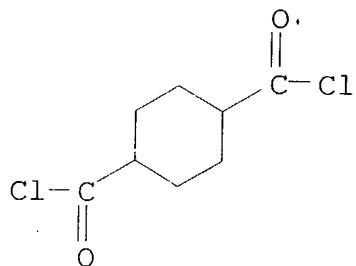
CM 1

CRN 83558-87-6
 CMF C15 H12 F6 N2 O2



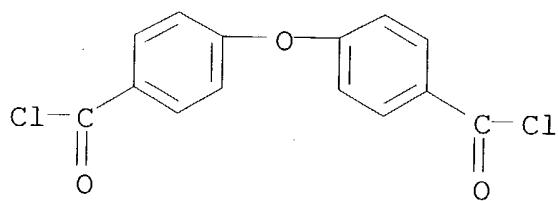
CM 2

CRN 13170-66-6
 CMF C₈ H₁₀ Cl₂ O₂



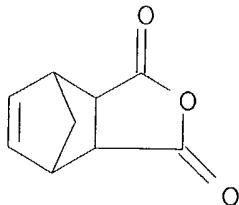
CM 3

CRN 7158-32-9
 CMF C₁₄ H₈ Cl₂ O₃



CM 4

CRN 826-62-0
 CMF C₉ H₈ O₃



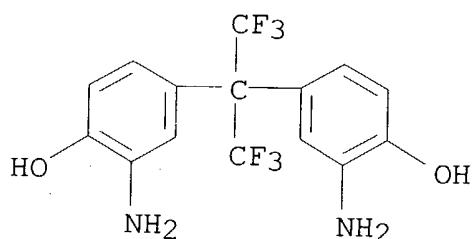
RN 680620-22-8 HCA

CN Hexanedioyl dichloride, polymer with 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

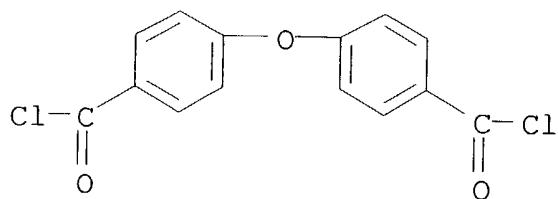
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

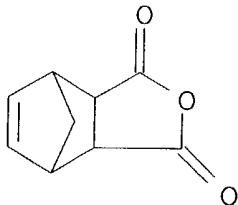
CMF C14 H8 Cl2 O3



CM 3

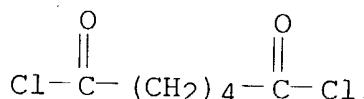
CRN 826-62-0

CMF C9 H8 O3



CM 4

CRN 111-50-2

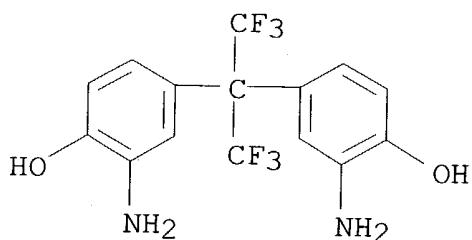
CMF C₆ H₈ Cl₂ O₂

RN 680620-23-9 HCA

CN Hexanedioyl dichloride, octafluoro-, polymer with
 4,4'-oxybis[benzoyl chloride], 3a,4,7,7a-tetrahydro-4,7-
 methanoisobenzofuran-1,3-dione and 4,4'-[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
 NAME)

CM 1

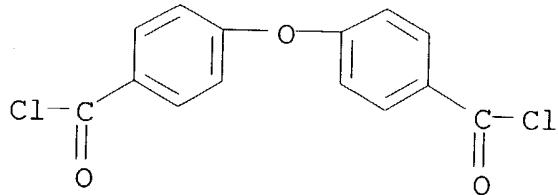
CRN 83558-87-6

CMF C₁₅ H₁₂ F₆ N₂ O₂

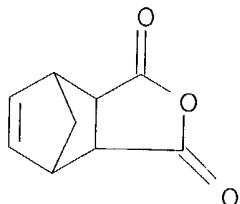
CM 2

CRN 7158-32-9

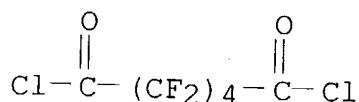
CMF C₁₄ H₈ Cl₂ O₃



CM 3

CRN 826-62-0
CMF C9 H8 O3

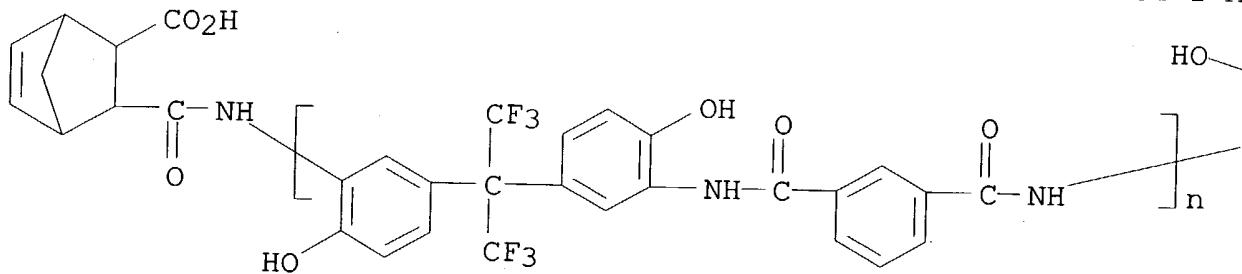
CM 4

CRN 336-06-1
CMF C6 Cl2 F8 O2

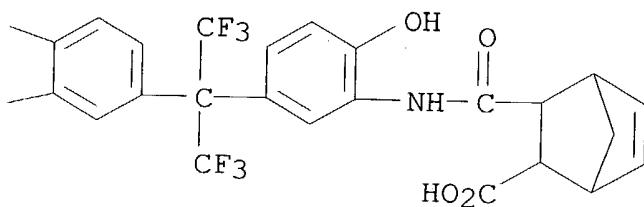
RN 680620-24-0 HCA

CN Poly[iminocarbonyl-1,3-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)], .alpha.-[5-[1-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]-.omega.-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



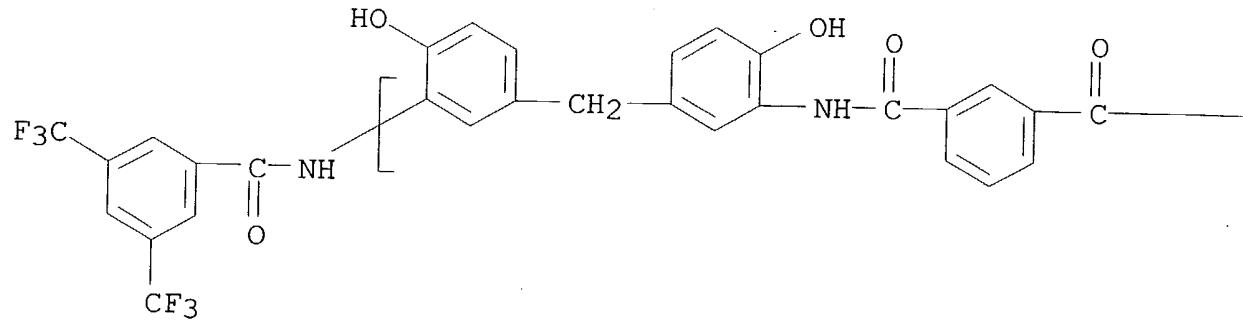
PAGE 1-B



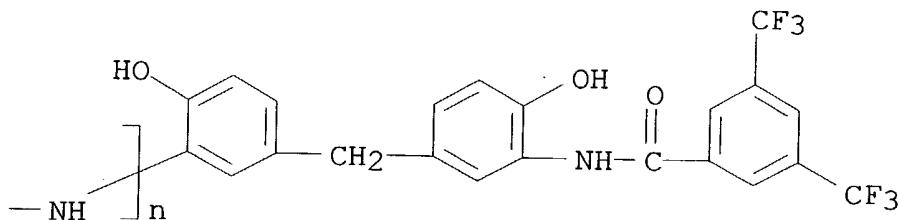
RN 680620-25-1 HCA

CN Poly[iminocarbonyl-1,3-phenlenecarbonylimino(6-hydroxy-1,3-phenylene)methylene(4-hydroxy-1,3-phenylene)], .alpha.-[5-[[3-[[3,5-bis(trifluoromethyl)benzoyl]amino]-4-hydroxyphenyl]methyl]-2-hydroxyphenyl]-.omega.-[[3,5-bis(trifluoromethyl)benzoyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



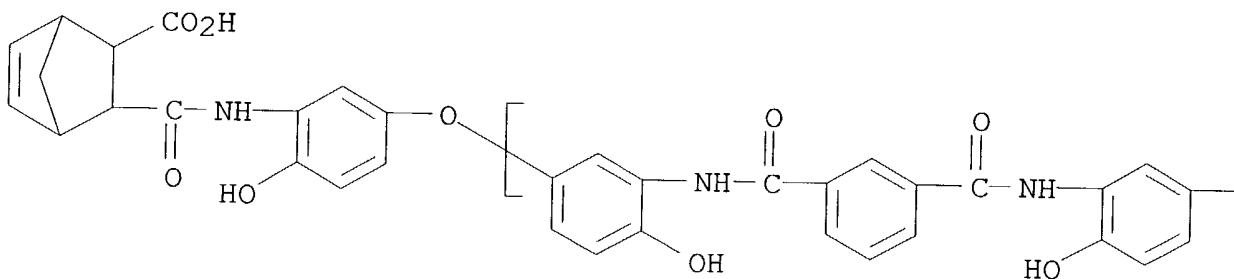
PAGE 1-B



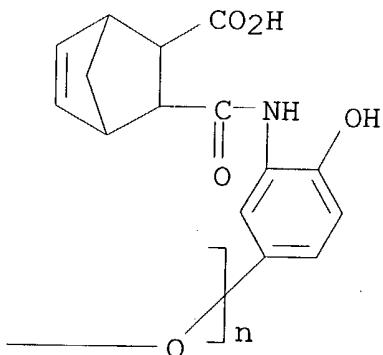
RN 680620-26-2 HCA

CN Poly[oxy(4-hydroxy-1,3-phenylene)iminocarbonyl-1,3-phenylene]carbonylimino(6-hydroxy-1,3-phenylene)],
 .alpha.-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl-.omega.-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenoxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



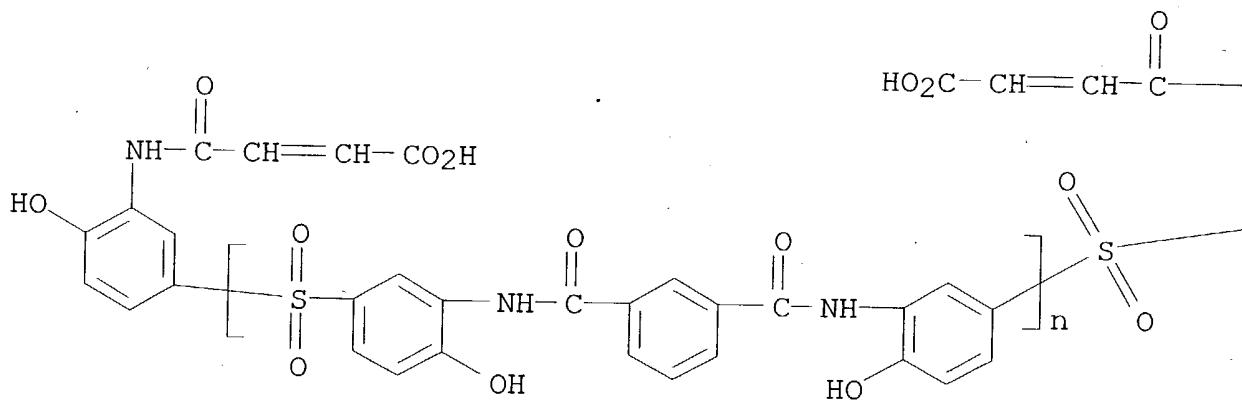
PAGE 1-B



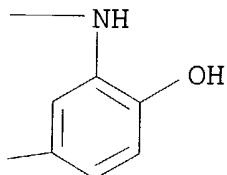
RN 680620-27-3 HCA

CN Poly[sulfonyl(4-hydroxy-1,3-phenylene)iminocarbonyl-1,3-phenylene carbonylimino(6-hydroxy-1,3-phenylene)],
 .alpha.-[3-[(2Z)-3-carboxy-1-oxo-2-propenyl]amino]-4-hydroxyphenyl]-
 .omega.-[[3-[(2Z)-3-carboxy-1-oxo-2-propenyl]amino]-4-
 hydroxyphenyl]sulfonyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



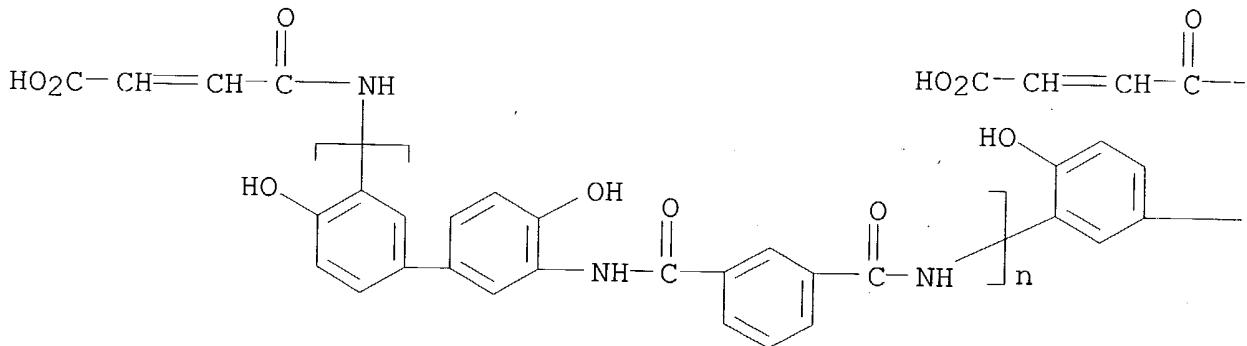
PAGE 1-B



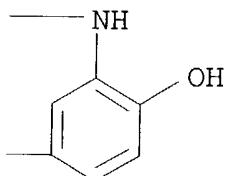
RN 680620-28-4 HCA

CN Poly[iminocarbonyl-1,3-phenylenecarbonylimino(4,4'-dihydroxy[1,1'-biphenyl]-3,3'-diyl)], .alpha.-[3'-[[((2Z)-3-carboxy-1-oxo-2-propenyl)amino]-4,4'-dihydroxy[1,1'-biphenyl]-3-y1]-.omega.-[((2Z)-3-carboxy-1-oxo-2-propenyl)amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



RN 680620-29-5 HCA

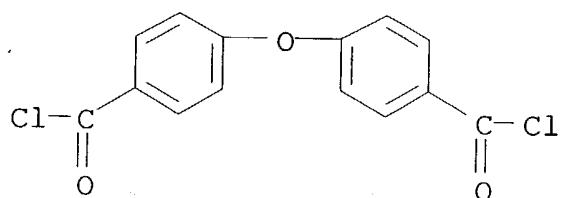
CN 1,3-Benzenedicarbonyl dichloride, polymer with 3,3'-diamino[1,1'-biphenyl]-4,4'-diol and 4,4'-oxybis[benzoyl chloride] (9CI) (CA

INDEX NAME)

CM 1

CRN 7158-32-9

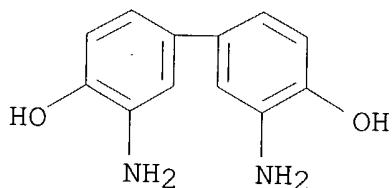
CMF C14 H8 Cl2 O3



CM 2

CRN 4194-40-5

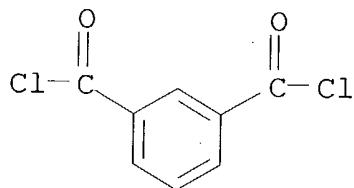
CMF C12 H12 N2 O2



CM 3

CRN 99-63-8

CMF C8 H4 Cl2 O2

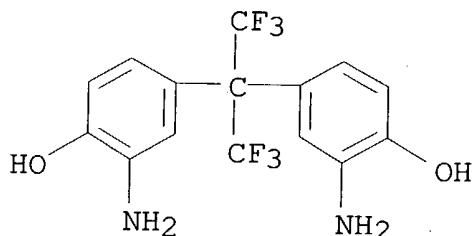


RN 680620-30-8 HCA

CN Benzoyl chloride, 4,4'-oxybis-, polymer with 4,4'-sulfonylbis[benzoyl chloride] and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX NAME)

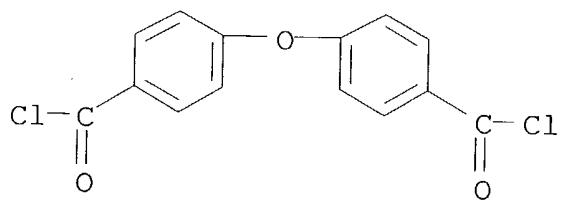
CM 1

CRN 83558-87-6
 CMF C15 H12 F6 N2 O2



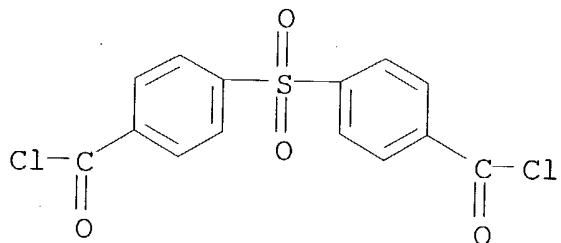
CM 2

CRN 7158-32-9
 CMF C14 H8 Cl2 O3



CM 3

CRN 4462-61-7
 CMF C14 H8 Cl2 O4 S

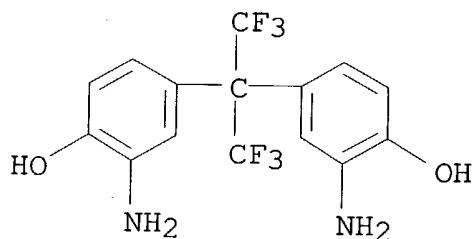


RN 680620-31-9 HCA

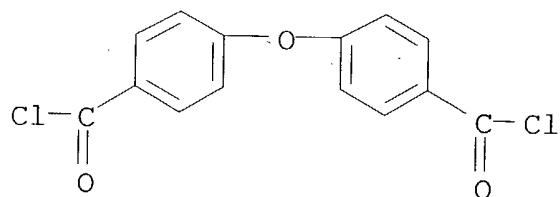
CN [1,1'-Biphenyl]-4,4'-dicarbonyl dichloride, polymer with
 4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX)

NAME)

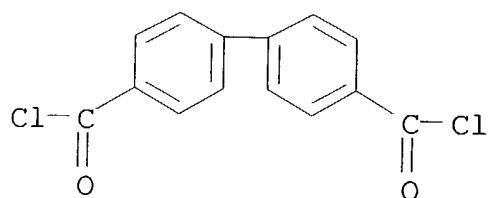
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2

CM 2

CRN 7158-32-9
CMF C14 H8 Cl2 O3

CM 3

CRN 2351-37-3
CMF C14 H8 Cl2 O2

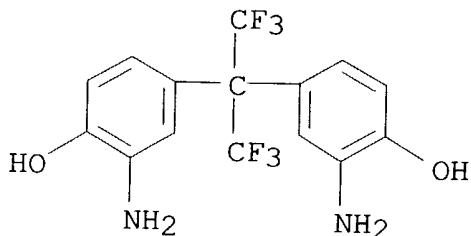
RN 680620-32-0 HCA

CN Benzoyl chloride, 4,4'-(1-methylethylidene)bis-, polymer with
4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-
(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX)

NAME)

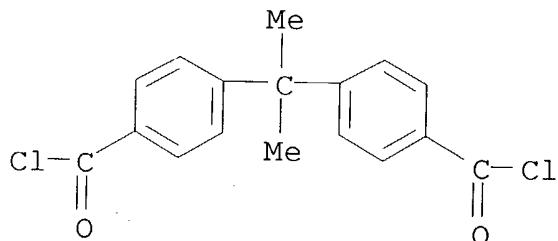
CM 1

CRN 83558-87-6
 CMF C15 H12 F6 N2 O2



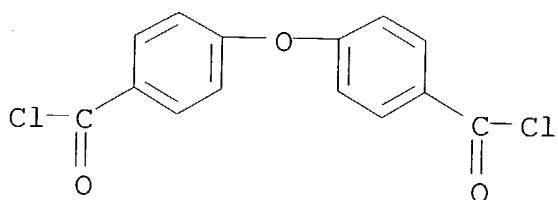
CM 2

CRN 19855-84-6
 CMF C17 H14 Cl2 O2



CM 3

CRN 7158-32-9
 CMF C14 H8 Cl2 O3



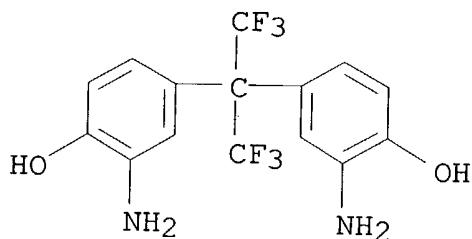
RN 680620-33-1 HCA

CN Benzoyl chloride, 4,4'-methylenebis-, polymer with
 4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-

(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
NAME)

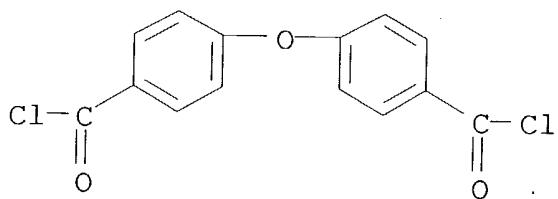
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



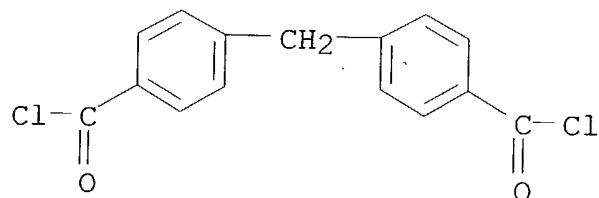
CM 2

CRN 7158-32-9
CMF C14 H8 Cl2 O3



CM 3

CRN 3268-26-6
CMF C15 H10 Cl2 O2



RN 680620-34-2 HCA

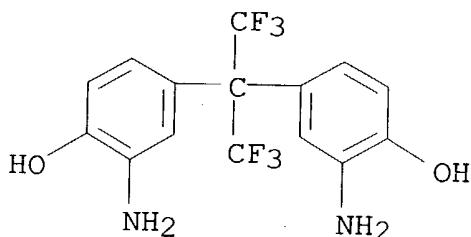
CN Benzoyl chloride, 4,4'-oxybis-, polymer with 3,3'-[1,3-phenylenebis(oxy)]bis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-

(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
NAME)

CM 1

CRN 83558-87-6

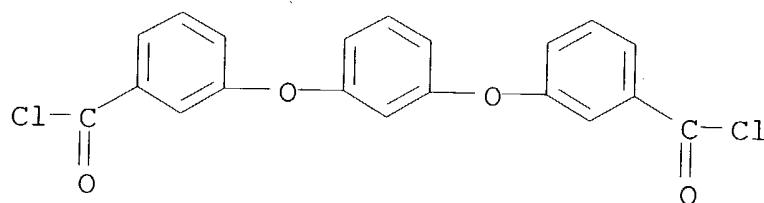
CMF C15 H12 F6 N2 O2



CM 2

CRN 74294-29-4

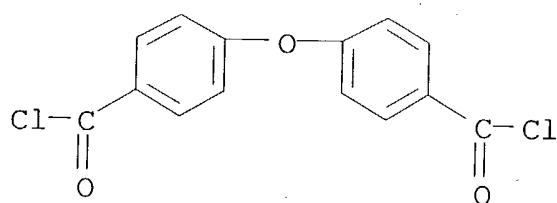
CMF C20 H12 Cl2 O4



CM 3

CRN 7158-32-9

CMF C14 H8 Cl2 O3



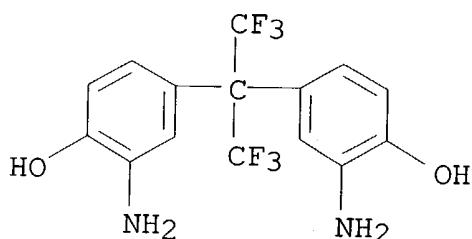
RN 680620-35-3 HCA

CN [1,1':4',1'':4'',1'''-Quaterphenyl]-4,4''''-dicarbonyl dichloride,
polymer with 4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-

1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
NAME)

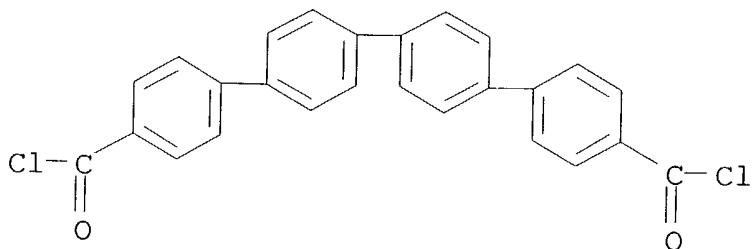
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



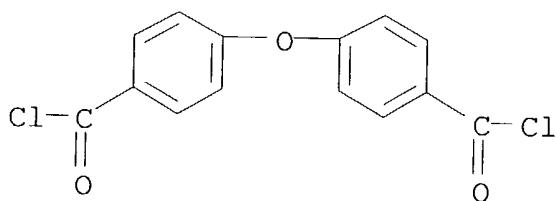
CM 2

CRN 55586-27-1
CMF C26 H16 Cl2 O2



CM 3

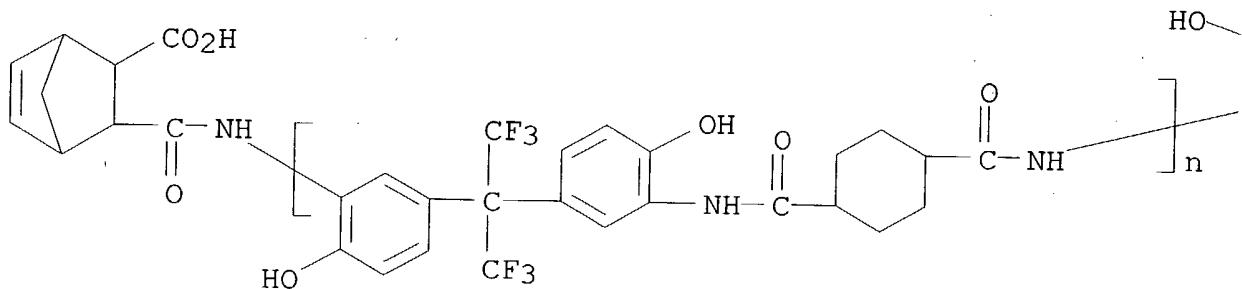
CRN 7158-32-9
CMF C14 H8 Cl2 O3



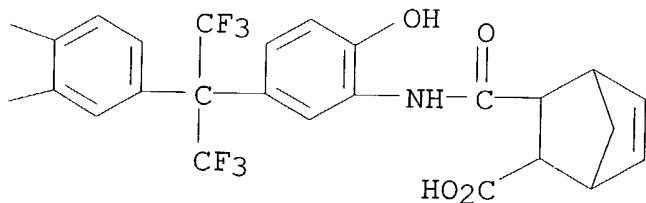
RN 680620-36-4 HCA

CN Poly[iminocarbonyl-1,4-cyclohexanediylcarbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)], .alpha.-[5-[1-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]-.omega.-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



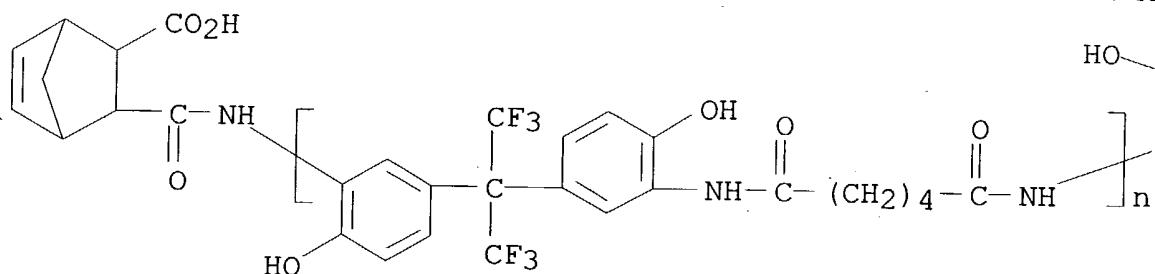
PAGE 1-B



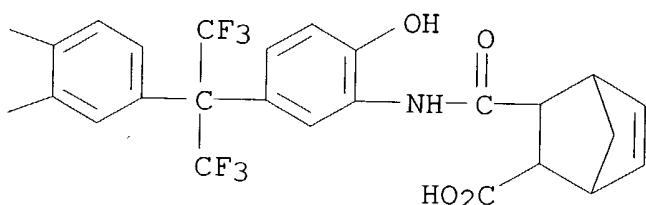
RN 680620-37-5 HCA

CN Poly[imino(1,6-dioxo-1,6-hexanediyil)imino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)], .alpha.-[5-[1-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]-.omega.-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



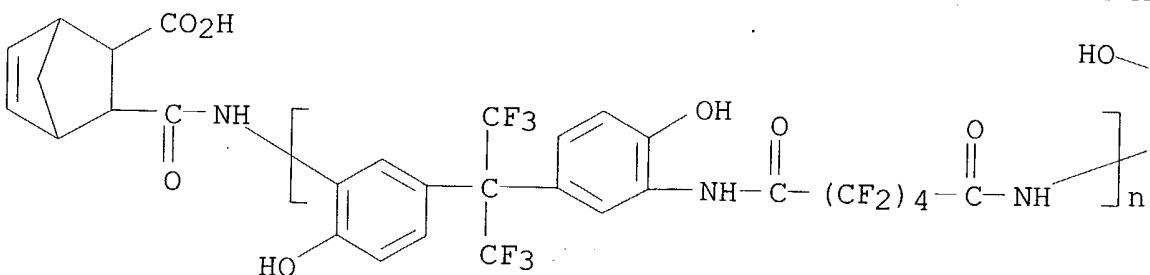
PAGE 1-B



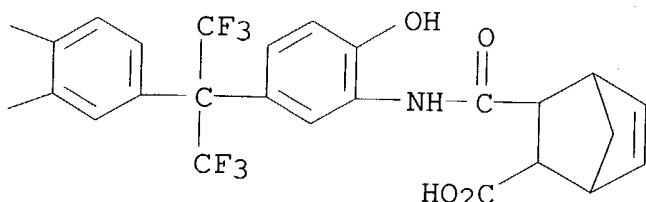
RN 680620-38-6 HCA

CN Poly[imino(2,2,3,3,4,4,5,5-octafluoro-1,6-dioxo-1,6-hexanediyil)imino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)], .alpha.-[5-[1-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]-.omega.-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



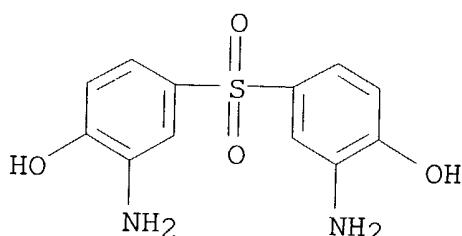
RN 680620-39-7 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-oxybis[benzoyl chloride] and 4,4'-sulfonylbis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 7545-50-8

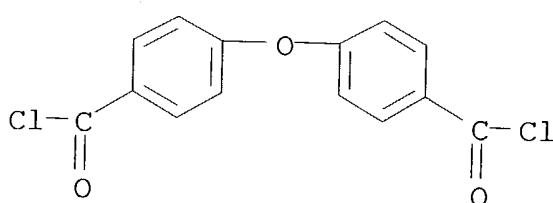
CMF C12 H12 N2 O4 S



CM 2

CRN 7158-32-9

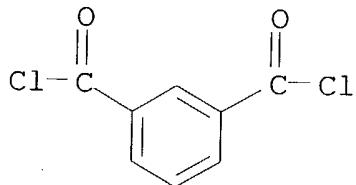
CMF C14 H8 Cl2 O3



CM 3

CRN 99-63-8

CMF C8 H4 Cl2 O2



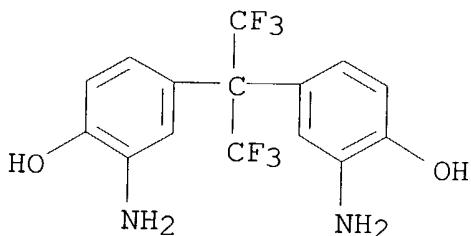
RN 680620-40-0 HCA

CN 1,4-Cyclohexanedicarbonyl dichloride, polymer with
4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-
(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
NAME)

CM 1

CRN 83558-87-6

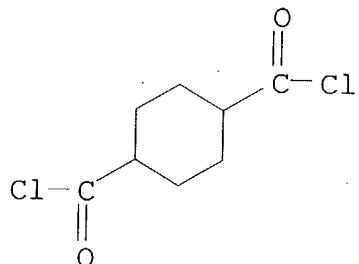
CMF C15 H12 F6 N2 O2



CM 2

CRN 13170-66-6

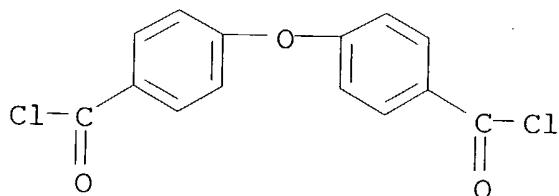
CMF C8 H10 Cl2 O2



CM 3

CRN 7158-32-9

CMF C14 H8 Cl2 O3



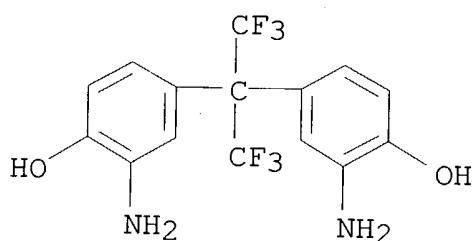
RN 680620-41-1 HCA

CN Hexanedioyl dichloride, polymer with 4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

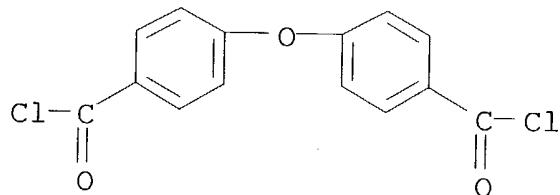
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

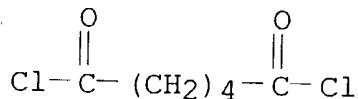
CMF C14 H8 Cl2 O3



CM 3

CRN 111-50-2

CMF C6 H8 Cl2 O2



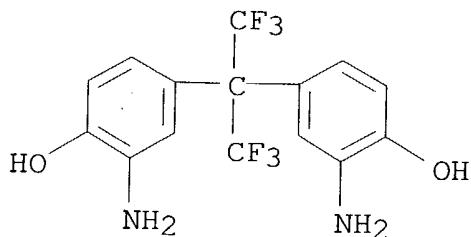
RN 680620-42-2 HCA

CN Hexanedioyl dichloride, octafluoro-, polymer with
4,4'-oxybis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-
(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX
NAME)

CM 1

CRN 83558-87-6

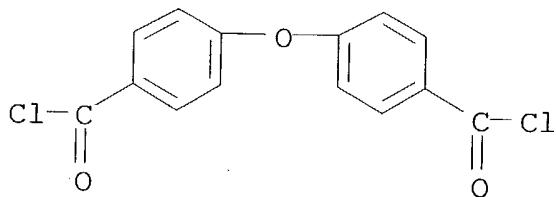
CMF C15 H12 F6 N2 O2



CM 2

CRN 7158-32-9

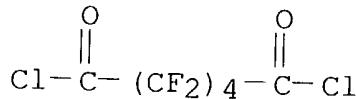
CMF C14 H8 C12 O3



CM 3

CRN 336-06-1

CMF C6 C12 F8 O2



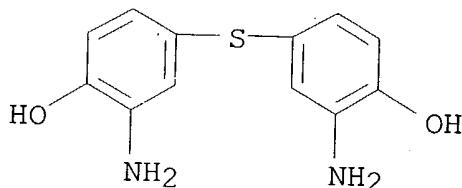
RN 748806-62-4 HCA

CN 1,3-Benzenedicarbonyl dichloride, polymer with 4,4'-thiobis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 22445-97-2

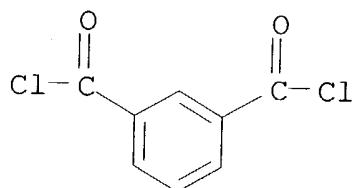
CMF C12 H12 N2 O2 S



CM 2

CRN 99-63-8

CMF C8 H4 Cl2 O2



IT 29186-74-1DP, terminated by maleic acid anhydride
 29186-76-3DP, terminated by perfluorobenzoic acid chloride
 29186-77-4DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 29791-91-1DP, terminated by maleic acid anhydride 37165-14-3DP, terminated by 3,5-trifluoromethylbenzoic acid chloride 112492-59-8DP, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-isophthalic acid chloride copolymer, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 174407-77-3DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 257280-04-9DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride

500372-81-6DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680619-85-6P 680619-94-7P
 680619-96-9P 680619-97-0P 680619-98-1P
 680619-99-2P 680620-00-2P 680620-01-3P
 680620-02-4P 680620-03-5P 680620-04-6P
 680620-05-7P 680620-06-8P 680620-07-9P
 680620-08-0P 680620-15-9P 680620-16-0P
 680620-17-1P 680620-18-2DP, perfluorobenzoic acid chloride-terminated 680620-19-3DP, 3,5-trifluoromethylbenzoic acid chloride-terminated 680620-21-7P
 680620-22-8P 680620-23-9P 680620-24-0P
 680620-25-1DP, terminated by 3,5-trifluoromethylbenzoic acid chloride 680620-26-2P 680620-27-3P
 680620-28-4P 680620-29-5DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-29-5DP, terminated by maleic anhydride 680620-30-8DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-31-9DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-32-0DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-33-1DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-34-2DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-35-3DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-36-4P 680620-37-5P 680620-38-6P 680620-39-7DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-40-0DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-41-1DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 680620-42-2DP, terminated by 5-norbornane-2,3-dicarboxylic acid anhydride 748806-62-4DP, terminated by perfluorobenzoic acid chloride (pos. type photosensitive plastic material for making optical waveguide)

L48 ANSWER 4 OF 13 HCA COPYRIGHT 2004 ACS on STN

140:243585 Positive-working light-sensitive resin composition for forming relief pattern for semiconductor device fabrication and method for heat-resistant coating using the same. Hiro, Masahiko; Minegishi, Tomonori; Katogi, Shigeki (Hitachi Chemical Du Pont Micro System Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004077551 A2 20040311, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-233932 20020809.

AB The title compn. contains a polyoxazole precursor and amine-imide generating a base compd. by heat. The compn. shows the efficient generation of tertiary base by heat and generates oxazoles at low temp.

IT 668990-71-4DP, reaction product with polyamide (amine-imide in pos.-working light-sensitive resin compn.)

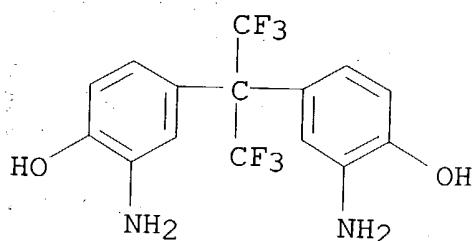
RN 668990-71-4 HCA

CN Tricyclo[3.3.1.13,7]decane-1,3-dicarboxylic acid, polymer with
 4,4'-oxybis[benzoic acid] and 4,4'-(2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene)bis[2-aminophenol] (9CI) (CA INDEX
 NAME)

CM 1

CRN 83558-87-6

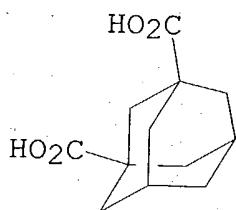
CMF C15 H12 F6 N2 O2



CM 2

CRN 39269-10-8

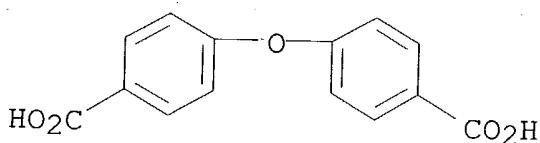
CMF C12 H16 O4



CM 3

CRN 2215-89-6

CMF C14 H10 O5



IT 668990-71-4DP, reaction product with polyamide
 (amine-imide in pos.-working light-sensitive resin compn.)

L48 ANSWER 5 OF 13 HCA COPYRIGHT 2004 ACS on STN
 139:330069 Production method of plastic optical waveguide. Miyao, Kenji
 (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
 2003294967 A2 20031015, 19 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2002-93102 20020328.

AB The invention relates to a plastic optical waveguide made of polybenzoxazole derived from the precursor represented by $(\text{NH-X(O R1)(OR2)-NH-CO-Y1-CO})^m (\text{NH-X(OR3)(OR4)-NH-CO-Y2-CO})^n$ [$m > 0$, $n \geq 0$, $2 < m + n \leq 1000$, and $0.05 \leq m/(m + n) \leq 1$; $R1-4 = H$ or monovalent org. groups].

IT **613224-09-2P**
 (prodn. method of plastic optical waveguide)

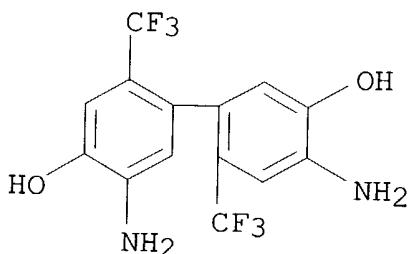
RN 613224-09-2 HCA

CN 1,4-Cyclohexanedicarbonyl dichloride, polymer with
 4,5'-diamino-2',6-bis(trifluoromethyl)[1,1'-biphenyl]-3,4'-diol and
 4,4'-oxybis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

CRN 438202-24-5

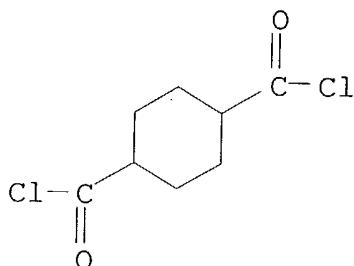
CMF C14 H10 F6 N2 O2



CM 2

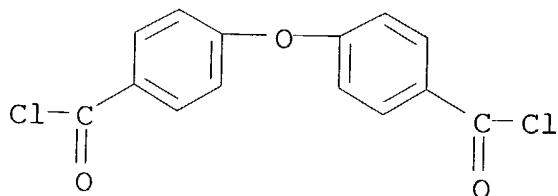
CRN 13170-66-6

CMF C8 H10 Cl2 O2



CM 3

CRN 7158-32-9
 CMF C14 H8 Cl2 O3



IT 613224-09-2P
 (prodn. method of plastic optical waveguide)

L48 ANSWER 6 OF 13 HCA COPYRIGHT 2004 ACS on STN
 139:277708 Polybenzoxazole-based electrically insulating materials, their varnish, heat-resistant porous insulator films, and semiconductor devices having them. Hase, Yoko; Enoki, Naoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003277508 A2 20031002, 24 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2002-87069 20020326.

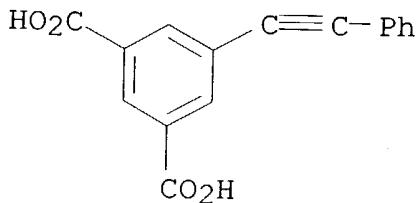
AB The insulating materials are manufd. by reacting (A) polyamides having branches, which are formed by reacting bisaminophenols and trifunctional carboxylic acids selected from trimellitic acid, trimesic acid, 1,3,5-cyclohexanetricarboxylic acid, and biphenyl ether-3,3',5-tricarboxylic acid, and (B) oligomers having functional groups reactive to carboxy, amino, or OH groups in the polyamides. The polyamides have repeating units of $[NHX(OH)2NHCOYCO]_m$ and $[NHX(OH)2NHCOZCO]_n$ [X = tetravalent groups based on benzene, biphenyl, fluorene, etc.; Y = biphenylene, acetylene-contg. phenylene, biphenylene, naphthylene, cyclohexylene, etc.; Z = phenylene, biphenylene, fluorenylene, cyclohexylene, etc.; m > 0; n > 0; m + n = 2-1000; m/(m + n) = 0.05-1]. Thus, 3,3'-diamino-4,4'-dihydroxybiphenyl, trimesic acid trichloride, 5-phenylethylnylisophthalic acid, and 5-ethynylisophthalic acid were polymd., reacted with polypropylene glycol bis(2-aminopropyl) ether, dissolved in N-methyl-2-pyrrolidone, applied on an Al-deposited Si wafer, baked, and heated for forming micropores by decompn. polyoxyalkylene portions to give a porous polybenzoxazole film showing dielec. const. 1.90, Tg > 450.degree., and water absorption 0.2%.

IT 605624-37-1P 605624-39-3P
 (heated for micropore formation; polybenzoxazole-based insulating materials for heat-resistant porous insulator films)

RN 605624-37-1 HCA
 CN 1,3-Benzenedicarboxylic acid, 5-ethynyl-, polymer with
 .alpha.- (2-aminomethyl ethyl)-.omega.- (2-
 aminomethyl ethoxy) poly[oxy(methyl-1,2-ethanediyl)],
 1,3,5-cyclohexanetricarbonyl trichloride, 3,3'-diamino[1,1'-
 biphenyl]-4,4'-diol and 5-(phenylethynyl)-1,3-benzenedicarboxylic
 acid (9CI) (CA INDEX NAME)

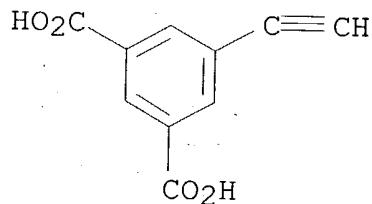
CM 1

CRN 432025-99-5
 CMF C16 H10 O4



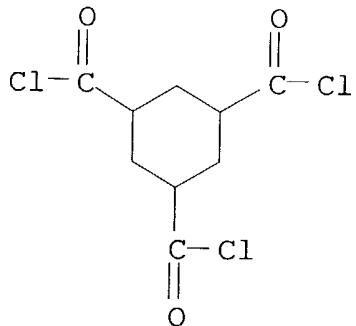
CM 2

CRN 432025-97-3
 CMF C10 H6 O4



CM 3

CRN 29305-31-5
 CMF C9 H9 C13 O3

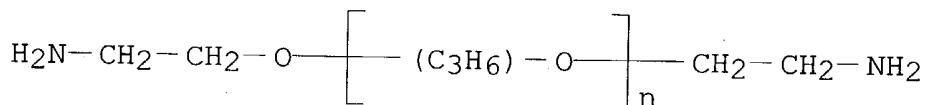


CM 4

CRN 9046-10-0

CMF (C₃H₆O)_n C₆H₁₆N₂O

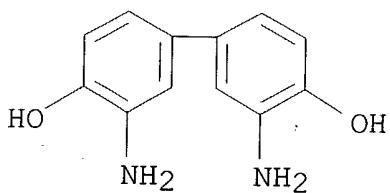
CCI IDS, PMS



2 (D1-Me)

CM 5

CRN 4194-40-5

CMF C₁₂H₁₂N₂O₂

RN 605624-39-3 HCA

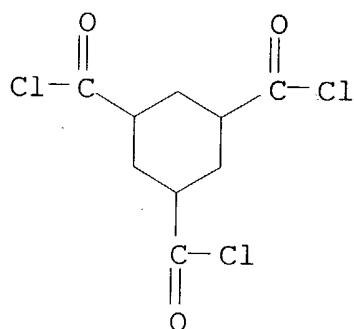
CN 1,3,5-Cyclohexanetricarbonyl trichloride, polymer with
 .alpha.- (2-aminomethylethyl)-.omega.- (2-
 aminomethylethoxy)poly[oxy(methyl-1,2-ethanediyl)],
 3,3'-diamino[1,1'-biphenyl]-4,4'-diol and 4,4'-(1,2-

ethynediyl)bis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

CRN 29305-31-5

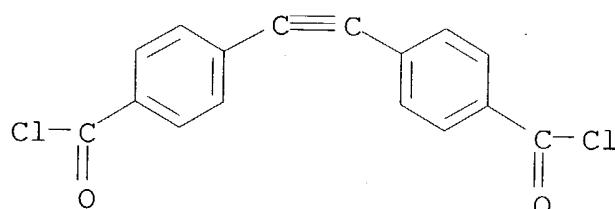
CMF C9 H9 Cl3 O3



CM 2

CRN 16819-44-6

CMF C16 H8 Cl2 O2

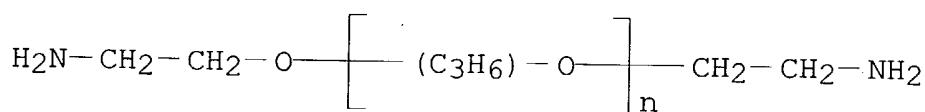


CM 3

CRN 9046-10-0

CMF (C3 H6 O)n C6 H16 N2 O

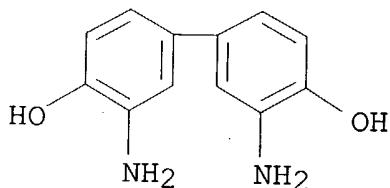
CCI IDS, PMS



2 (D1-Me)

CM 4

CRN 4194-40-5
 CMF C12 H12 N2 O2



IT 605624-37-1P 605624-39-3P

(heated for micropore formation; polybenzoxazole-based insulating materials for heat-resistant porous insulator films)

L48 ANSWER 7 OF 13 HCA COPYRIGHT 2004 ACS on STN

139:237730 Positive-working photosensitive resin compositions containing polyimide or polyoxazole precursors, pattern formation using them, and electronic devices having the pattern. Minegishi, Tomonori (Hitachi Chemical Du Pont Micro System Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003248314 A2 20030905, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-48025 20020225.

AB The compns., which show high sensitivity and good resoln. and provides a cured film with high mech. strength and heat resistance, contain (A) polyimide or polyoxazole precursors which contain (a) heat-polymerizable functional groups at the terminals and (b) OR (R = acid-decomposable monovalent org. group to be converted into H atom) or CO₂R attached to arom. ring and (B) radiation-sensitive acid generators.

IT 593272-62-9P 593272-65-2P 593278-83-2P

(pos.-working photoresist compns. contg. heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

RN 593272-62-9 HCA

CN Poly[oxy-1,4-phenylenecarbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene], .alpha.-[4-[[[5-[1-[3-[[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenyl]-.omega.-[4-[[[5-[1-[3-[[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenoxy]-, homopolymer (9CI) (CA INDEX

Le 20/701, 448

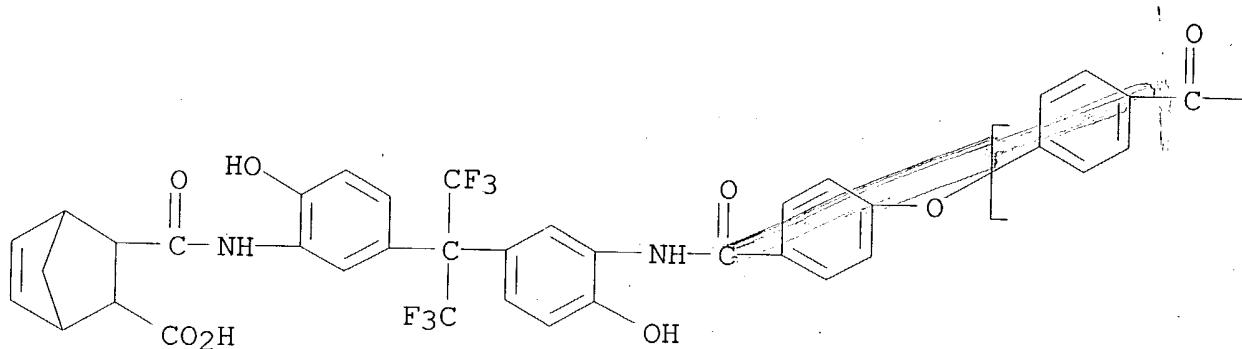
Page 73

NAME)

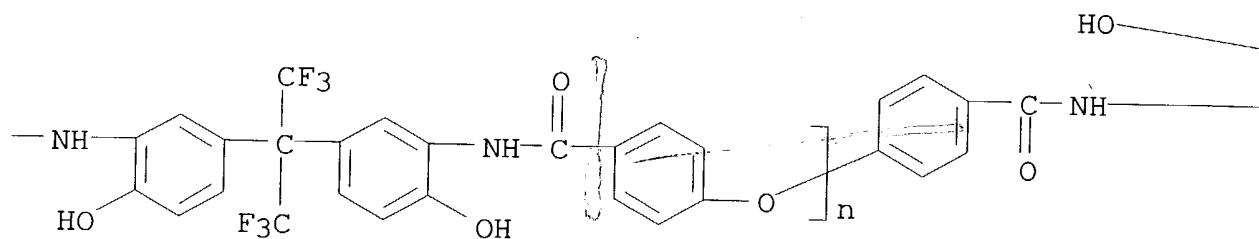
CM 1

CRN 361347-08-2
CMF (C₂₉ H₁₈ F₆ N₂ O₅)_n C₆₂ H₄₆ F₁₂ N₄ O₁₃
CCI PMS

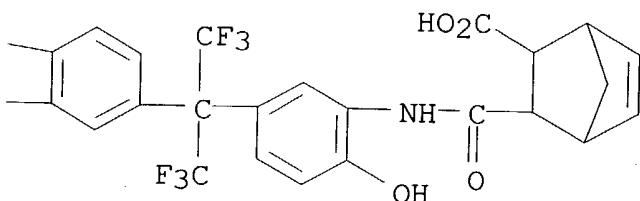
PAGE 1-A



PAGE 1-B



PAGE 1-C

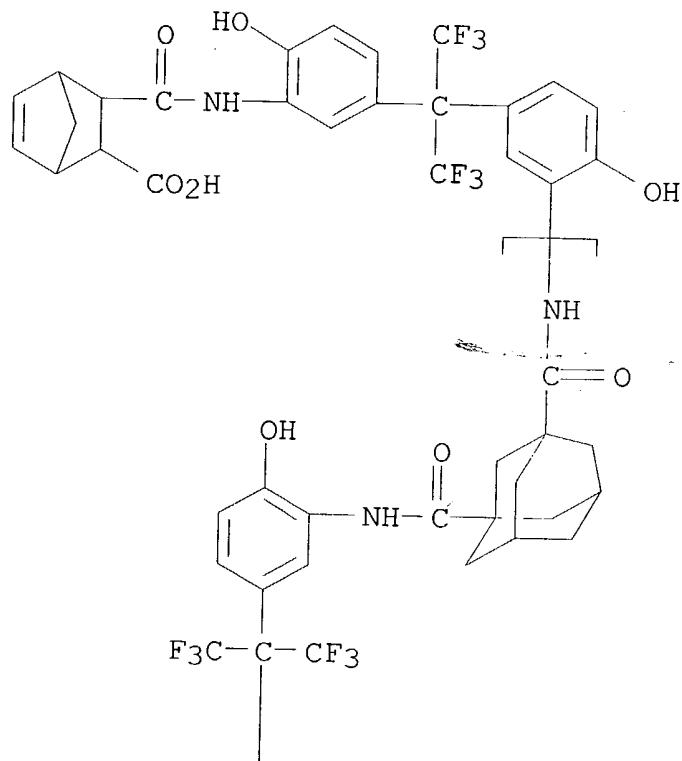


RN 593272-65-2 HCA
 CN Poly[iminocarbonyltricyclo[3.3.1.13,7]decane-1,3-diylcarbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)], .alpha.-[5-[1-[3-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]-.omega.-[(3-carboxybicyclo[2.2.1]hept-5-en-2-yl)carbonyl]amino]-, homopolymer (9CI) (CA INDEX NAME)

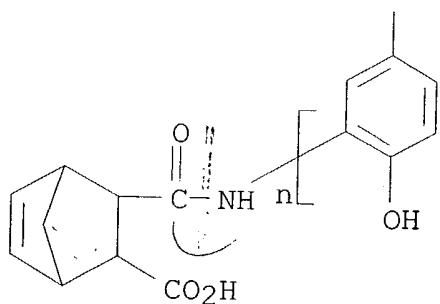
CM 1

CRN 593272-64-1
 CMF (C₂₇ H₂₄ F₆ N₂ O₄)_n C₃₃ H₂₈ F₆ N₂ O₈
 CCI PMS

PAGE 1-A



PAGE 2-A



RN 593278-83-2 HCA

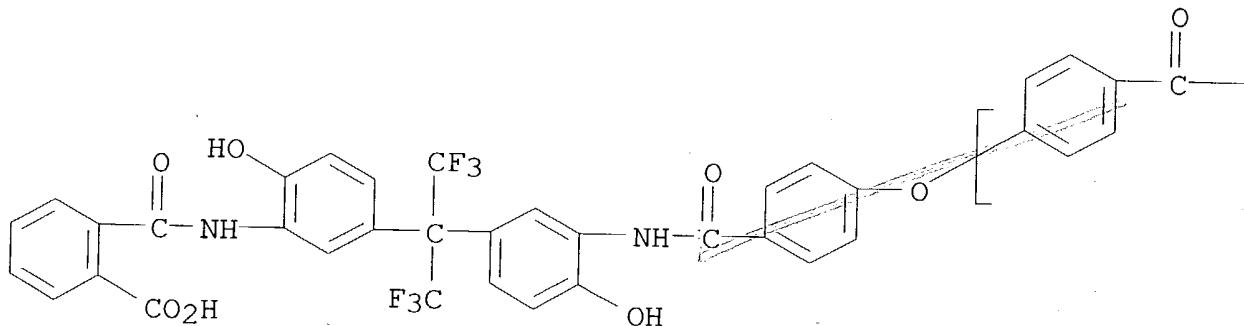
CN Poly[oxy-1,4-phenylene carbonylimino(6-hydroxy-1,3-phenylene) [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] (4-hydroxy-1,3-phenylene) iminocarbonyl-1,4-phenylene], .alpha.-[4-[[[5-[1-[3-[2-carboxy(phenylethynyl)benzoyl]amino]-4-hydroxyphenyl]-2,2,

trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]p
henyl]-.omega.-[4-[[[5-[1-[3-[2-carboxy(phenylethynyl)benzoyl]amino
]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-
hydroxyphenyl]amino]carbonyl]phenoxy]-, homopolymer (9CI) (CA INDEX
NAME)

CM 1

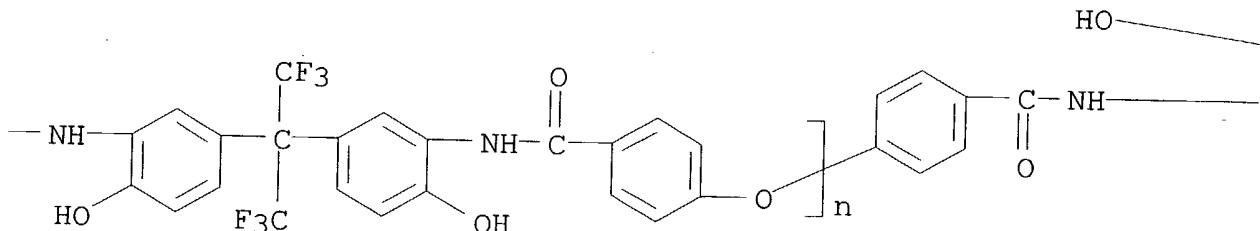
CRN 593278-82-1
CMF (C₂₉ H₁₈ F₆ N₂ O₅)_n C₇₆ H₄₆ F₁₂ N₄ O₁₃
CCI IDS, PMS

PAGE 1-A

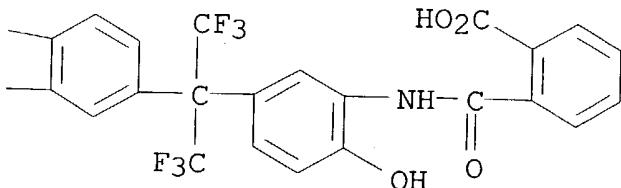


2 (Ph-C≡C-D1)

PAGE 1-B



PAGE 1-C



IT 593272-62-9P 593272-65-2P 593278-83-2P

(pos.-working photoresist compns. contg. heat polymerizable group-terminated polyimide or polyoxazole precursors having acid-decomposable group for protective film or interlayer insulating film for electronic devices)

L48 ANSWER 8 OF 13 HCA COPYRIGHT 2004 ACS on STN
138:354926

Electrically insulating films, materials and coating varnishes for them, and semiconductor devices. Oki, Hiromi; Nakashima, Michio; Hase, Yoko; Izumi, Atsushi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003128990 A2 20030508, 25 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-331959 20011030.

AB Elec. insulating films, useful as interlayer dielec. films for multilayer wiring boards or surface protective layers for semiconductors, have fine pores and comprise resin layers mainly comprising polybenzoxazole structures, prep'd. by thermal condensation and crosslinking reactions of materials or varnishes contg. film-forming polyamide copolymers prep'd. by reaction of polyamides $[\text{NHX}(\text{OH})_2\text{NHCOYCO}]^m[\text{NHX}(\text{OH})_2\text{NHCOZCO}]^n$ [$\text{R}_1-\text{R}_4 = \text{H}$, monovalent org. group; $\text{X} = \text{arom. ring-contg. tetravalent group}$; $\text{Y} = \text{divalent group}$; $\text{Z} = \text{divalent group}$ (structures of X , Y , and Z are given); $m > 0$; $n \geq 0$; $2 \leq m + n \leq 1000$; $0.05 \leq m/(m + n) \leq 1$] having branched structures prep'd. from bisaminophenols and polybasic carboxylic acids, with reactive oligomers having substituents reactive towards carboxyl, amino, or OH groups in the polyamide structures. Thus, 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane 35.9, trimesic acid trichloride 0.53, and 4-ethynyl-2,6-naphthalenedicarboxylic acid dichloride 27.7 g were polym'd. in N-methyl-2-pyrrolidone (NMP), the reaction mixt. was mixed with Et_3N , and stirred with a γ -butyrolactone soln. contg. 4-aminobenzoate ester-terminated styrene oligomer (M_n 9600; prep'n. given) to give a copolymer contg. 37% reactive oligomer units, which was dissolved in NMP, applied on an Al-deposited Si wafer, dried at 120.degree. for 240 s, heated at 300.degree. for 60 min under N to form a film of a polybenzoxazole having styrene oligomer units at the terminals, and heated at 400.degree. for 60 min for decompn. of the oligomer units to form a polybenzoxazole film having d_{10} 15-nm pores, dielec. const. (at 1 MHz) 2.1, heat

resistance 563.degree., Tg >450.degree., and water absorption 0.2%. An electrode pattern was formed on the polybenzoxazole film by vapor deposition of Al.

IT 519142-94-0P

(thermally decompd., polybenzoxazole; elec. insulating polybenzoxazole films having fine pores prep'd. by heating of copolymers from branched polyamides and reactive oligomers for semiconductor devices)

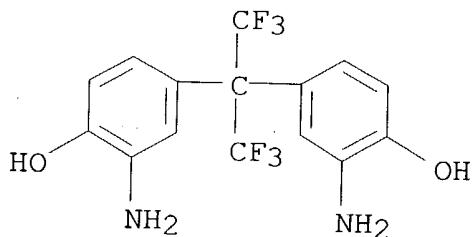
RN 519142-94-0 HCA

CN 1,3,5-Cyclohexanetricarbonyl trichloride, polymer with .alpha.- (2-aminopropyl)-.omega.- (2-aminopropoxy)poly[oxy(methyl-1,2-ethanediyl)], 4,4'-(1,2-ethynediyl)bis[benzoyl chloride] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

CM 1

CRN 83558-87-6

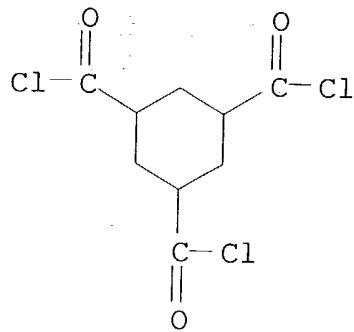
CMF C15 H12 F6 N2 O2



CM 2

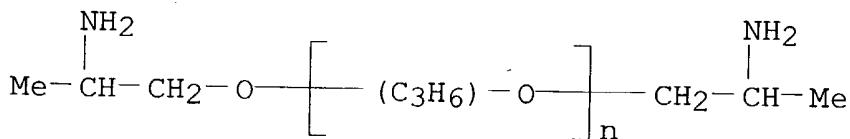
CRN 29305-31-5

CMF C9 H9 Cl3 O3



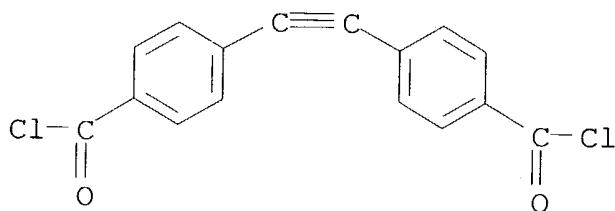
CM 3

CRN 26403-64-5
 CMF (C₃ H₆ O)_n C₆ H₁₆ N₂ O
 CCI IDS, PMS



CM 4

CRN 16819-44-6
 CMF C₁₆ H₈ Cl₂ O₂



IT 519142-94-0P

(thermally decompd., polybenzoxazole; elec. insulating polybenzoxazole films having fine pores prep'd. by heating of copolymers from branched polyamides and reactive oligomers for semiconductor devices)

L48 ANSWER 9 OF 13 HCA COPYRIGHT 2004 ACS on STN

136:103176 Photo-sensitive polybenzoxazole precursor resins and alkali-developable compositions useful for lithographic patterning containing them. Kaneda, Takayuki; Kimura, Masashi; Kanaya, Ryuichiro (Asahi Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002012665 A2 20020115, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-335097 20001101. PRIORITY: JP 2000-130480 20000428.

AB The resins are obtained from the reaction products of a polyamide bearing OH groups partially with OCN(CH₂)_mOCOC(R₁):CR₂R₃ (R₁₋₃ = H, C₁₋₃ aliph. groups; m = 2-10), and used in compns. contg. photoinitiators, crosslinkers and diluents for neg.-working photoresists in patterning of semiconductor devices. Thus, condensing 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane with 4,4'-diphenyl ether dicarboxylic acid dichloride, end-blocking the resulting polyamide with phthalic anhydride, purifying, and reacting

the blocked product with 2-isocyanatoethyl methacrylate (at an amt. equiv. to 40 mol% of OH groups on the product) gave a polybenzoxazole precursor 100 parts of which was combined with tetraethylene glycol dimethacrylate 40, 1-phenyl-propanedione-2-(o-benzoyl) oxime 6, Michler's ketone 2, 3-aminopropyltrimethoxysilane 6, N-nitrosodiphenylamine 0.1 and N-methyl-2-pyrrolidone 230 parts to give a neg.-working photoresist with good light curability and developing property by alkali.

IT 389104-95-4P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-4,4'-diphenyl ether dicarboxylic acid dichloride copolymer polyamide sru, terminated with cyclohexane-1,2-dicarboxylic anhydride, carbamate ester with 2-isocyanatoethyl methacrylate
(photo-sensitive polybenzoxazole precursor resins and alkali-developable compns. useful for lithog. patterning contg. them)

RN 389104-95-4 HCA
CN Poly[oxy-1,4-phenylene carbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene) iminocarbonyl-1,4-phenylene], .alpha.-[4-[[3-[1-[3-[(2-carboxycyclohexyl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-6-hydroxyphenyl]amino]carbonyl]phenyl]-.omega.-[4-[[3-[1-[3-[(2-carboxycyclohexyl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-6-hydroxyphenyl]amino]carbonyl]phenoxy]-, [2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]carbamate (9CI) (CA INDEX NAME)

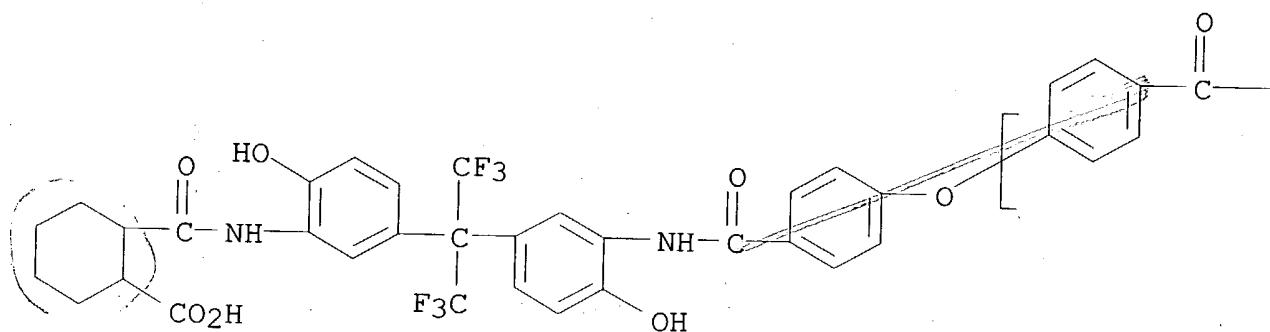
CM 1

CRN 389078-02-8
CMF (C29 H18 F6 N2 O5)n C60 H50 F12 N4 O13
CCI PMS

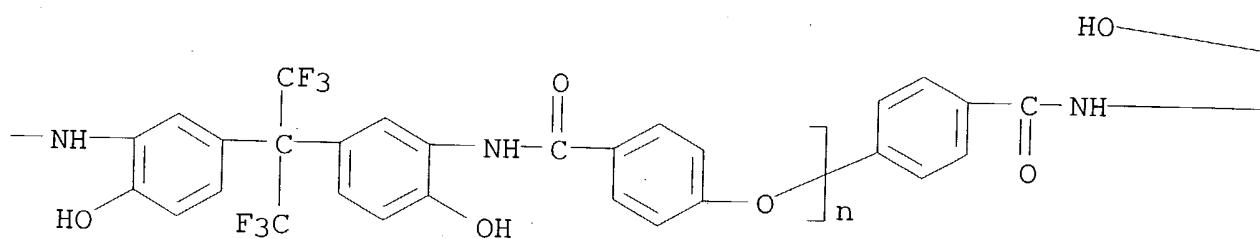
Le 20/701, 448

Page 81

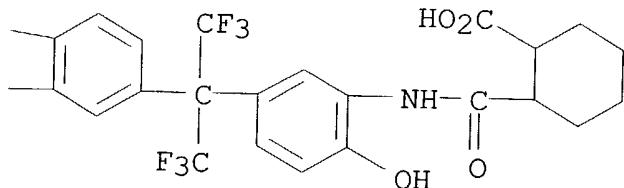
PAGE 1-A



PAGE 1-B



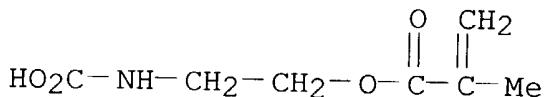
PAGE 1-C



CM 2

CRN 96571-20-9

CMF C7 H11 N O4



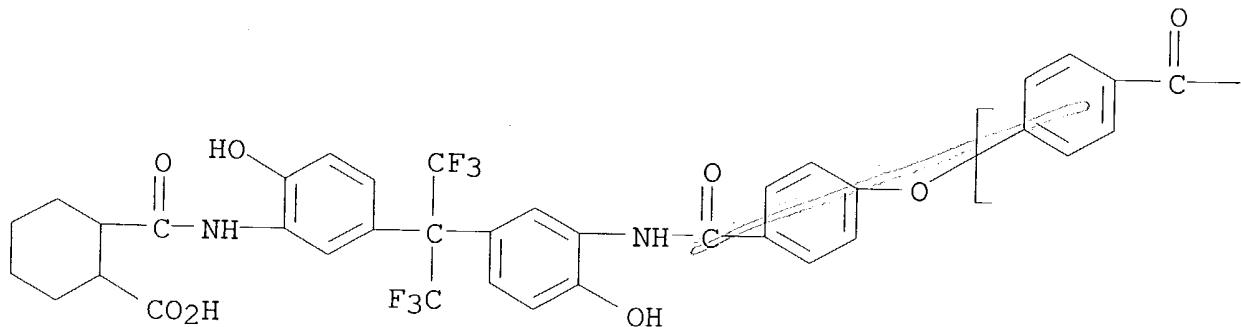
IT 389078-02-8P

(photo-sensitive polybenzoxazole precursor resins and alkali-developable compns. useful for lithog. patterning contg. them)

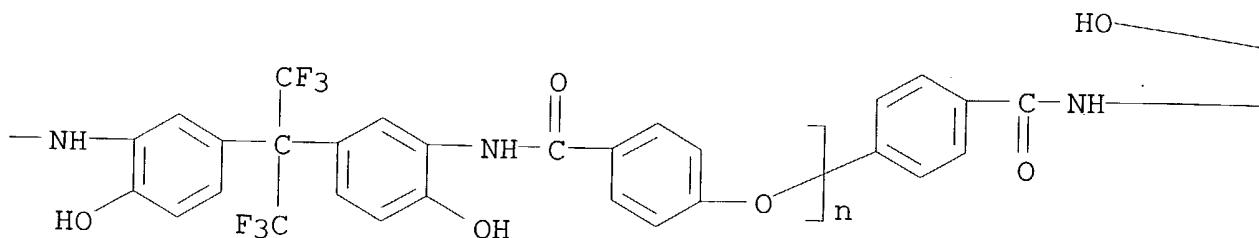
RN 389078-02-8 HCA

CN Poly[oxy-1,4-phenylene carbonylimino(6-hydroxy-1,3-phenylene)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](4-hydroxy-1,3-phenylene)iminocarbonyl-1,4-phenylene], .alpha.-[4-[[5-[1-[3-[(2-carboxycyclohexyl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenyl]-.omega.-[4-[[5-[1-[3-[(2-carboxycyclohexyl)carbonyl]amino]-4-hydroxyphenyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]-2-hydroxyphenyl]amino]carbonyl]phenoxy]- (9CI) (CA INDEX NAME)

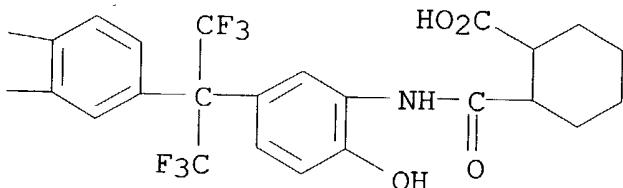
PAGE 1-A



PAGE 1-B



PAGE 1-C



- IT 389104-95-4P, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane-4,4'-diphenyl ether dicarboxylic acid dichloride copolymer polyamide sru, terminated with cyclohexane-1,2-dicarboxylic anhydride, carbamate ester with 2-isocyanatoethyl methacrylate
(photo-sensitive polybenzoxazole precursor resins and alkali-developable compns. useful for lithog. patterning contg. them)
- IT 389078-02-8P
(photo-sensitive polybenzoxazole precursor resins and alkali-developable compns. useful for lithog. patterning contg. them)

L48 ANSWER 10 OF 13 HCA COPYRIGHT 2004 ACS on STN
135:258211 Organic insulating film with good electric-insulating and heat-resistant properties and film made from the same. Hase, Yoko; Enoki, Naoshi; Oki, Hiromi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001261829 A2 20010926, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-77077 20000317.

AB The film is made by the reaction of a diaminophenol, an org. compd. having d value of 3-10, and a dicarboxylic acid; and ring-closing reaction. Thus, a film was prep'd. by the polymn. of 2,2-bis(3-amino-4-hydroxyphenyl)hexafluoropropane, trimesic acid trichloride, and 4,4'-hexafluoroisopropylidenediphenyl-1,1'-dicarboxylic acid dichloride.

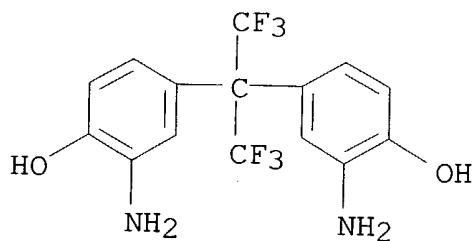
IT 362484-48-8P
(org. insulating film with good elec.-insulating and heat-resistant properties and film made from the same)

RN 362484-48-8 HCA

CN 1,3,5-Cyclohexanetricarbonyl trichloride, polymer with 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[benzoyl chloride] (9CI) (CA INDEX NAME)

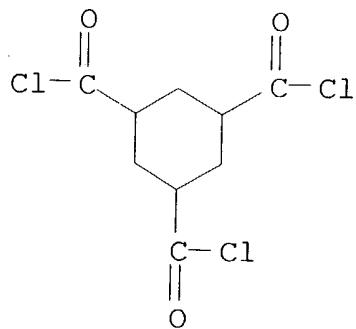
CM 1

CRN 83558-87-6
 CMF C15 H12 F6 N2 O2



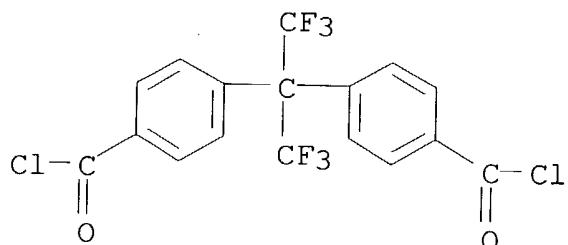
CM 2

CRN 29305-31-5
 CMF C9 H9 Cl3 O3



CM 3

CRN 1102-92-7
 CMF C17 H8 Cl2 F6 O2



IT 362484-48-8P

(org. insulating film with good elec.-insulating and heat-resistant properties and film made from the same)

L48 ANSWER 11 OF 13 HCA COPYRIGHT 2004 ACS on STN
 130:359295 Positive-working photosensitive resin composition containing polybenzoxazole precursor. Saito, Hideki; Murayama, Mitsumoto; Nakajima, Michio (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11119426 A2 19990430 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-280696 19971014.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title resin compn. contains a polybenzoxazole precursor I or $(\text{QNHCOR}'\text{CONH})_s(\text{QNHCOR}"\text{CONH})_t$ [$n = 2-100$; $s, t = 1-99$; $R, R', R'' = \text{II}$ [$X = \text{CMe}_2, \text{CMeCF}_3, \text{C}(\text{CF}_3)_2, \text{CMePh}, \text{CPhCF}_3, \text{CPh}_2, \text{SiMe}_2, \text{SiPh}_2, \text{SiMePh}, \text{SO}_2, \text{CO}, \text{CO}_2, \text{O}, \text{S}]$, $p\text{-C}_6\text{H}_4\text{C}_6\text{H}_4\text{-p}$, naphthylene, phenylene, $(\text{CF}_2)_o$, $(\text{CH}_2)_p$, ($o, p = 4-20$), cyclohexylene, III, $(\text{CH}_2)_q(\text{SiY}_2\text{O})_r\text{SiY}_2(\text{CH}_2)_q$ ($q, r = 1-20$; $Y = \text{alkyl or Ph}$); Q = IV] and a reactant of diazo compd. V or VI with phenol compds. as a photosensitive diazonaphthoquinone compd. The compn. shows improved adhesion to substrate and high transparency.

IT 224585-07-3P

(pos. photoresist compn. contg. polybenzoxazole precursor and naphthoquinonediazide compd.)

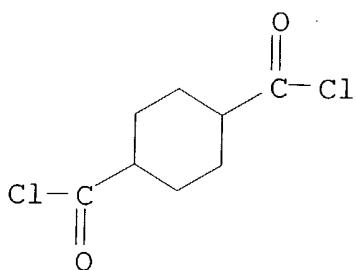
RN 224585-07-3 HCA

CN 1,4-Cyclohexanedicarbonyl dichloride, polymer with 4,4'-sulfonylbis[2-aminophenol] and 4,4'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene)bis[benzoyl chloride] (9CI) (CA INDEX NAME)

CM 1

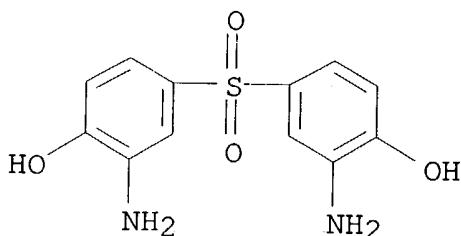
CRN 13170-66-6

CMF C8 H10 Cl2 O2



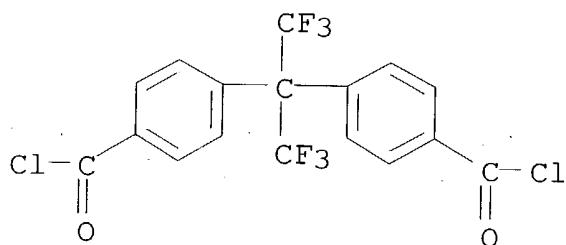
CM 2

CRN 7545-50-8
 CMF C12 H12 N2 O4 S



CM 3

CRN 1102-92-7
 CMF C17 H8 Cl2 F6 O2

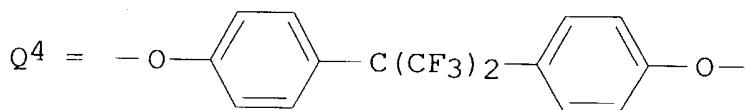
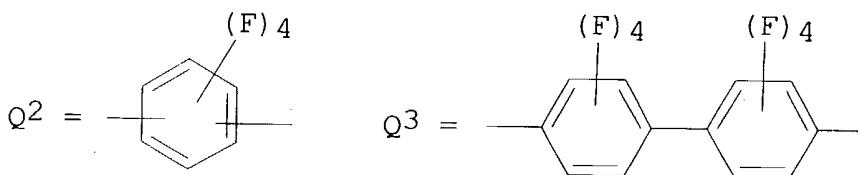
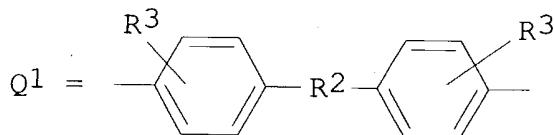


IT 224585-07-3P

(pos. photoresist compn. contg. polybenzoxazole precursor and naphthoquinonediazide compd.)

L48 ANSWER 12 OF 13 HCA COPYRIGHT 2004 ACS on STN
 128:168187 Aromatic polyamides containing phenolic OH with low moisture absorption. Kiyohara, Osamu; Taruishi, Chihiro (Tomoegawa Paper Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10025341 A2 19980127 Heisei, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-181029 19960710.

GI



AB The polyamides, useful for heat-resistance improvers or adhesion enhancers, satisfy intrinsic viscosity (.eta.) 0.1-3.0 dL/g and are consist of 5-95 mol% CORCONHR1NH and 5-95 mol% COLCONHR1NH [R = tetrafluorophenyl, decafluorocyclohexane; L = C6H3(OH); R1 = Q1, Q2, Q3 [R2 = single bond, C(CF3)2, Q4]; R3 = H, CF3, Me, OH]. Thus, 1.821 g 5-hydroxyisophthalic acid was reacted with 2.401 g tetrafluoroisophthalic acid and 6.53 g 4,4'-diaminoctafluorobiphenyl at 120.degree. to give polyamide showing .eta. (at 30.degree., in 0.5-g/dL dimethylacetamide soln.) 0.70 dL/g and moisture absorption 0.8%.

IT 202394-73-8P

(fluoromonomer-copolymd. arom. polyamides contg. phenolic OH with low moisture absorption)

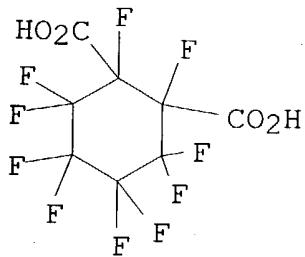
RN 202394-73-8 HCA

CN 1,2-Benzenedicarboxylic acid, 4-hydroxy-, polymer with 1,2,3,3,4,4,5,5,6,6-decafluoro-1,2-cyclohexanedicarboxylic acid and 3,3'-(2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[6-aminophenol] (9CI) (CA INDEX NAME)

CM 1

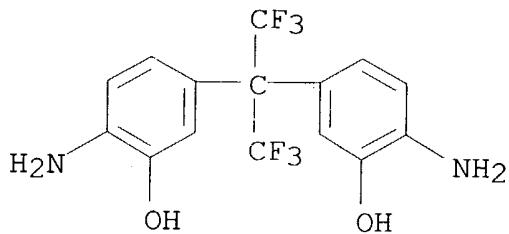
CRN 202394-72-7

CMF C8 H2 F10 O4



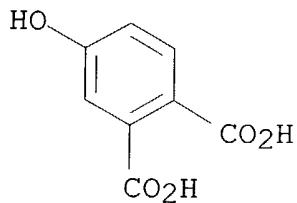
CM 2

CRN 22428-25-7
CMF C15 H12 F6 N2 O2



CM 3

CRN 610-35-5
CMF C8 H6 05



IT 202394-73-8P

(fluoromonomer-copolymerd. arom. polyamides contg. phenolic OH with low moisture absorption)

L48 ANSWER 13 OF 13 HCA COPYRIGHT 2004 ACS on STN

125:277261 Design, preparation and characterization of thermotropic

77201 Design, preparation and characterization of thermotropic liquid crystal polyamides. Alder, P.; Dolden, J. G. (BP Res. Centre, Middlesex, TW16 7LN, UK). High Performance Polymers, 8(3),

433-444 (English) 1996. CODEN: HPPOEX. ISSN: 0954-0083.
 Publisher: Institute of Physics Publishing.

AB In this paper, the authors set out to synthesize novel amorphous wholly arom. and semi-arom. thermotropic polyamides. As cryst. arom. polyamides are normally infusible, it was necessary to ensure that the target polyamides were amorphous with a definable softening point below their temp. of decompn. The 'Symmetry Index' approach first developed by Dolden was used to ensure that the chosen monomer compns. were able to produce amorphous polyamides. Aharoni has reported that three amide linked arom. rings is the min. unit size needed to obtain mesogenic polyamides. Building on this principle, a new empirical predictive technique called the 'Mesogenic Index' is introduced and combined with the Symmetry Index to predict polyamides which are both amorphous and thermotropic. This approach was validated by the prepn. of a whole new series of thermotropic amorphous polyamides which were based on 3,3'-dimethoxybenzidine, and the acid chlorides of terephthalic, isophthalic and adipic acids. Furthermore, this led on to the prepn. of two more series of amorphous polyamides, believed by the authors to be the first wholly arom. thermotropic polyamides to be reported, based on 3,3'-dimethoxy and 3,3'-dimethyl benzidine in conjunction with a variety of arom. and cyclic diacids.

IT **182953-87-3P**

(design and prepn. and characterization of thermotropic liq.-cryst. polyamides)

RN 182953-87-3 HCA

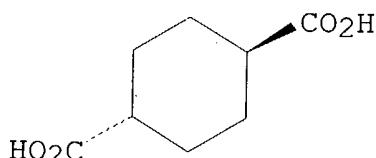
CN 1,3-Benzenedicarboxylic acid, polymer with trans-1,4-cyclohexanedicarboxylic acid and 3,3'-dimethoxy[1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX NAME)

CM 1

CRN 619-82-9

CMF C8 H12 O4

Relative stereochemistry.



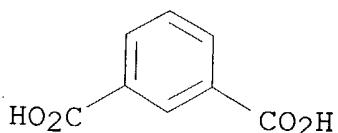
CM 2

CRN 121-91-5

Le 20/701, 448

Page 90

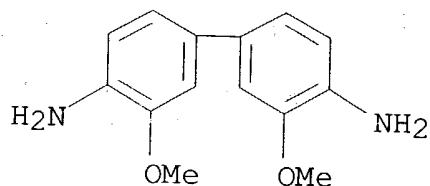
CMF C8 H6 O4



CM 3

CRN 119-90-4

CMF C14 H16 N2 O2



IT 182953-87-3P

(design and prepn. and characterization of thermotropic
liq.-cryst. polyamides)